Medical Lib.

OCT 12 1926

The

# British Medical Journal

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION.

*Including an Epitome of Current Medical Literature.*

**WITH SUPPLEMENT.**

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## QUERIES AND ANSWERS.

### PRURITUS.

"W. A." asks for suggestions in the treatment of a patient aged 52, who suffers from continual pruritus all over the body, most pronounced on the palms of the hands and increased after meals. The condition started in September, 1925. The urine is normal; there is no evidence of venereal disease, past or present. The skin is hardened and thickened. Mineral and sea baths, arsenic, and light diet have alike failed to give relief.

### INCOME TAX.

*Production of Detailed Accounts.*

"H. E. E." has been asked by the inspector of taxes to supply him with copies of accounts—showing gross receipts and expenses—as a condition (apparently) of granting the depreciation allowance for a motor car; the request has been complied with, but is there any reason why it should be made on a depreciation claim?

*** There is just this technical ground, that the depreciation allowance is not due if cost of renewals (not "obsolescence" claim) has been included in the accounts, but it may be that the inspector's request would, in any event, have been made before long. "H. E. E." is entitled for 1926-27 only to the depreciation allowance on the value of the car as at April 5th, 1926, calculated on the basis of writing down the value of the car at the depreciation rate. "H. E. E." should bear in mind that when he renews his car he can submit an obsolescence claim—that is, allowance of the renewal cost less the depreciation actually allowed on the car.

*Assessments.*

"W. H. K." has been separately assessed under Schedule E in respect of the emoluments of an appointment; the fees have been included in the Schedule D return as part of the general profits of his practice.

*** We think that the separate assessment was made without knowledge of the circumstances, and that it will be discharged by the inspector of taxes on receipt of an explanation from "W. H. K."

"F. R. W.," who practises in the Irish Free State, explains that he has recently been called upon to pay £12 odd, an amount assessed upon his father, since deceased, for 1924-25, and that if his father had "appealed against this assessment within the statutory time limit of twenty-one days he had ample allowances to counterbalance this amount."

*** If "F. R. W." refers to the statutory "allowances" for individuals (£135 or £225), wife, assurance, etc., he can claim repayment within six years from April 5th, 1925, but if he refers to a claim for a reduction of the gross amount assessed any appeal is now outside the time limit and he has no legal claim to redress.

*Replacement of Car.*

"X. Y. Z." had a two-seater 10-h.p. car (cost £475), which he sold in 1924 for £90, purchasing a four-seater 14-h.p. car of similar make for £375. What can he claim?

*** He can claim as an expense of the year 1924 the then cost of a 10-h.p. two-seater car *less* £90. This may seem somewhat inadequate, but the difficulty is that part of the expenditure incurred in 1924 went in improvement, and as such has to be regarded as capital outlay.

## LETTERS, NOTES, ETC.

### SPONTANEOUS DISAPPEARANCE OF THE ARCUS SENILIS.

DR. J. W. TOMB, O.B.E. (Asansol, Bengal, India), writes: An Englishwoman, married, aged 60, was attacked with influenza in 1918, from the effects of which she did not fully recover. Her relatives and friends stated that prior to her illness she had been more alert and vigorous than the average person of her age, but when I saw her a year later she was markedly senile in appearance, as well as somnolent and apathetic; she also suffered from pronounced anorexia. Examination did not reveal any very definite physical symptoms, except moderate anaemia and a slight degree of pyorrhoea. A distinct arcus senilis was visible in the lower semicircle of each iris. Treatment of various kinds for the anorexia and anaemia was without effect, the patient continuing in the state described above for over twelve months. At the end of that period all teeth were extracted on her dentist's advice and artificial teeth provided. Following this procedure, and without any further treatment, the somnolence and apathy gradually disappeared, and the pat ent again becoming alert and vigorous, so that when examined by me three years later she appeared many years younger than on her previous visit; the arcus senilis, in the meanwhile, had completely disappeared from both eyes.

### TUBERCULIN DISPENSARIES.

DR. ANNIE MCCALL, Chairman and Director, Clapham Maternity Hospital and Affiliated Institutions (London, S.W.), writes: Will you very kindly allow me to ask, through the medium of your columns, if perchance there is now a tuberculin dispensary in Brighton, where a patient going out from Rudgwick Sanatorium may receive treatment with tuberculin on the intensive system, as taught by Dr. Camac Wilkinson in 1910 and following years? I can hardly imagine a place of the size and importance of Brighton not having a public tuberculin dispensary, and there surely must be some of the many doctors there who are proficient in the method, but I cannot find any one who is known to be an expert in this treatment.

I personally have followed out his method of treatment ever since the Clapham Tuberculin Dispensary was opened in April, 1911, and am more than ever convinced that, up to the present time, no other treatment can give anything like such good results, and I have been working at Rudgwick Sanatorium ever since 1898. If this treatment is begun early enough about 90 per cent. recover completely, and that without having to give up their daily work, which is so important. In London, now that Dr. Wilkinson has returned, this early treatment may be obtained at 32, Fitzroy Street, Fitzroy Square, Tottenham Court Road, W.C., on Mondays and Thursdays, 9 to 11 a.m., and doctors are invited to come and learn it. Other towns should surely be able to work out such a system, so that patients everywhere may get the benefit.

### JOHN HILTON.

DR. RICHARD GILLBARD (Willesden Green, N.W.) writes: Sir Arthur Keith, the great anatomist, in an address in the BRITISH MEDICAL JOURNAL to those entering the profession (September 4th, p. 409), avers that "every student should get to know Hilton's *Rest and Pain*, not only for what he has to say but also for the way he says it." Besides that classical book, we are aware, as well, of the exquisite, unrivalled anatomical dissections in the Guy's Museum, representing "the day's work." We know, too, that John Hilton was surgeon to Guy's, President of the Royal College of Surgeons, and received other "decorations"; but is there any material to reveal the personality, the man behind it all? Is there a portrait, was he in love, did he marry, and whom? Was he acquainted with sorrow? Joseph Towne, who realized his dissections, was an artist; was Hilton an artist, too? It is said that, as a lecturer, "he had an unfortunate way of irritating students." There may be light here, for Landor, the perfect author and creator of *Rose Aylmer*, quarrelled—most of all with himself. After leaving Guy's, Hilton practised in the City, apparently toiling to the age of 70. Perhaps he had not been prosperous, and one would not like to think of Hilton as a "successful" Mendelssohn. We may speculate, as his thoughts wandered to his Alma Mater, and think—

No exile's dream was ever half so sad.

And, I return to my question, who was John Hilton?

### VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 42, 43, and 47 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 44 and 45.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page *156*.

## A British Medical Association Lecture

ON

# THE DIAGNOSIS AND TREATMENT OF PLACENTA PRAEVIA.

Given to the Winchester Division on July 7th, 1926,

BY

J. BARRIS, F.R.C.P., F.R.C.S.,

PHYSICIAN ACCOUCHEUR, ST. BARTHOLOMEW'S HOSPITAL.

The subject of the diagnosis and treatment of placenta praevia is not only one of the greatest practical importance, but one much debated and upon which opinion is still divided.

### Diagnosis.

It is first necessary to ascertain whether the blood comes through the cervical canal or from disease of the lower genital tract—as, for instance, carcinoma of the cervix. This can be determined by examination with the finger and with the speculum. If the blood be found to come through the canal we have then to decide between a diagnosis of accidental haemorrhage or of placenta praevia.

The presence of placenta praevia may be conjectured if the haemorrhage has been repeated owing to the gradual stretching of the lower uterine segment and resultant separation of it from the placenta. The existence of a malposition of the foetus, or the finding of the foetal head too high or unengaged, more especially in a primigravida at or near term in whom the pelvis is not contracted, is also suggestive of the condition. It is possible that if the woman is very thin the placenta may be palpable as a boggy mass at the pelvic brim on abdominal examination, or that the head may be felt more clearly one side than on the other. An unusually loud uterine souffle over this area has sometimes been noted. Vaginal examination may reveal a spongy resistance in the fornices obscuring the presenting part. The absence of albuminuria is also suggestive; it is much more commonly present in accidental haemorrhage, although several cases have now been recorded in which this condition has been found in association also with placenta praevia.[6]

If, therefore, there is bleeding but no malposition, if the head is engaged and albumin is present, a diagnosis of accidental haemorrhage is suggested. If, on the other hand, the bleeding has been repeated, the head is high, there is a malposition, and albumin is absent, placenta praevia is the more probable diagnosis. But none of these symptoms or physical signs is of itself sufficient to enable us to establish a diagnosis. The only certain way to diagnose placenta praevia is to feel the placenta through the cervical canal; if then the spongy placenta can be felt the diagnosis is certain. Blood clot or a vesicular mole may be mistaken for the placenta; the former is distinguished by its friability and the ease with which the finger can be pushed through it. A vesicular mole is more difficult to distinguish, but the bleeding usually occurs far earlier in pregnancy; the undue size of the uterus in relation to the period of amenorrhoea and the inability to feel a foetus on abdominal palpation or to obtain internal ballottement serve to distinguish between the two conditions. It is rare that the cervix will not admit the finger; but if the cervix is closed, or if when open the examining finger cannot reach the placenta, the diagnosis must still remain in doubt.

Now early diagnosis is an essential part of the treatment of placenta praevia. It has therefore been suggested that if, during the later weeks of pregnancy, the cervix be closed, an attempt should be made to establish the diagnosis by passing a metal dilator through the canal, for if on withdrawing it bleeding occurs the presence of the placenta can certainly be inferred. In almost all cases, however, the cervix will allow the finger to be passed if care and gentleness are employed.

### Treatment.

We may first review the principles upon which the treatment must be based.

Nature's method of arresting bleeding from the placental site is threefold. It consists of thrombosis of the uterine vessels, and contraction and retraction of the uterine muscle. Of these thrombosis does not play a determining part, and contraction is effective only when the muscle is gripping the blood vessels, but is ineffective during relaxation. Retraction is the important factor, for the shortening of the muscle fibre is permanent. Now retraction can only be efficient if the uterus is empty. It therefore follows that the only efficient way to stop the bleeding is to terminate the pregnancy.

If this principle be accepted the next point that arises is whether, once the diagnosis is made, the pregnancy should be terminated forthwith, or whether we are justified in temporizing in order to increase the viability of the foetus. In this connexion it is necessary to take into account that permanent arrest can only be assured by complete retraction, and that until the woman is delivered she is open to the risk of further haemorrhage as the cervix and lower segment dilate, and so cause further separation of the placenta from the low placental site; nor is it known to what extent a further haemorrhage may be. Therefore a temporary cessation of bleeding must not be allowed to lull us into a false sense of security, for at any moment a fresh bleeding, and even one which may prove fatal to the mother, may occur.[5] Further, the life of the foetus is always precarious, for not only is it usually premature, but it is liable to die of asphyxia during the process of delivery, and is sometimes weakened by loss of blood through injury to the placenta and the foetal blood vessels. It is not right, therefore, to risk the mother's life by delay in order to give the child a better chance, and in deciding upon the treatment the interests of the mother must be our first consideration. It follows upon this that once the diagnosis is made the pregnancy must be ended, and ended at once; hence an early diagnosis is of the utmost importance.

We have now to consider the method of terminating the pregnancy. Our choice of method must be guided by a consideration of the following points. The haemorrhage must be arrested temporarily during the process of delivery by means of pressure of some sort upon the exposed placental site; the delivery should be carried out at such a time as the patient is in a condition in which she will be best able to bear it, and conducted in such a manner that will entail a minimum of shock, of further haemorrhage, and of injury to the maternal soft tissues. *It is our intervention, therefore, which must be prompt, but the actual delivery must be slow.* The arrest of the haemorrhage and the delivery of the patient are two distinct and separate points. To do both at the same time is a confusion of aim and of ideas. There is everything to be gained by delay after the bleeding has been arrested, for not only is the patient given time to recover from her shock, but she is less exposed to the risk of further haemorrhage and laceration if the foetus is not rapidly extracted, but is allowed to be expelled subsequently by uterine contractions. The foetus also is less exposed to overmoulding of the head and to the other complications which rapid delivery entails.

The temporary arrest of the haemorrhage and the subsequent delivery of the patient may be effected by means of (*a*) rupturing the membranes and the application of a binder; (*b*) vaginal plugging and binder; (*c*) traction on the head if a vertex presentation; (*d*) the insertion of a hydrostatic bag; (*e*) version and plugging by the half-breech. The choice of which particular method is best suited for the individual case must depend, not only upon the size of the cervix and the position of the placenta, but also, and primarily, upon the condition of the mother, the amount of blood which she has lost already, and the probable amount of further haemorrhage which will be involved during the process of the delivery.

Except for the cases of placenta praevia which can be described as slight, in that the patient's condition is good, little blood has been or is likely to be lost, and in which the cervix is well dilated, uterine contractions are strong,

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but will also, as in the case of the bag, help to dilate the cervix and stimulate uterine contractions. If the breech is not already presenting it will be necessary first to perform version. The best way to do this is to do external version and then to bring down a leg, as it entails less manipulation, and so less risk of accompanying haemorrhage from causing further separation of the placenta, than does the more usual method of bipolar version. Plugging by the half-breech requires that the cervix should be dilated enough to admit two fingers, but it is extremely rare that this criterion is not present by the time we are asked to see the patient. An essential part of the treatment is that, having performed an external version and brought down a leg, the labour should then be left to Nature in order to prevent laceration of the cervix and complications with the foetus.

The method possesses certain great advantages, for no special apparatus is required and an anaesthetic is often unnecessary. Moreover, continuous pressure upon the placental site is definitely secured. If the mother's condition is not good it is advisable, in that it not only stops the bleeding but it allows the mother to recover and to deliver herself naturally later on. It is undoubtedly the best available method in the majority of cases, and is especially applicable to the conditions of general practice.

Jellett[5] advises version and bringing down a leg as the best method. He states that it requires two conditions: (*a*) the membranes must be unruptured to allow version to be done; (*b*) the os must be big enough to admit two fingers. He finds the first is practically always present, and the second in "more than 99 per cent. of cases." In the rare instances where it is not he recommends that the vagina may be plugged for a few—but only for a few—hours, as he regards the pack as too dangerous. The os will then be sufficiently open to allow a leg to be brought down. He found in a collected series of 264 cases of placenta praevia so treated that the maternal mortality was 5.3 per cent., including moribund patients, and 3 per cent. only if these were excluded.

In Schweitzer's[7] series about 40 per cent. were treated by a hydrostatic bag where the condition of the mother was good and the foetus was sufficiently mature. He noted that a fairly copious loss of blood attended its use, but it gave a better chance to the child. He considers that if the mother has already lost considerably version is much safer for her, though attended with a high foetal mortality. His results were 3.8 per cent. maternal mortality if the bag was used, and 6.6 per cent. if version was employed, but he specially states that this was selected for more serious cases.

Conrad[2] had a maternal mortality of 11.6 per cent. using the bag, and 7.6 per cent. from version. He found the foetal mortality was 50 per cent. by version and 16.3 per cent. with the bag.

There were no maternal deaths in the St. Bartholomew's Hospital series treated by the bag, but the foetus was stillborn in every case.

To sum up, in comparing plugging by the half-breech with the bag, the former has the great advantages that no instrument is required and the pressure on the placental site is continuous and assured, so that further haemorrhage cannot occur. These advantages are not present if the bag is used.

### *Traction on the Foetal Head.*

Willett[9] recently brought forward the ingenious suggestion of exerting pressure upon the placental site by means of traction on the foetal head. He has used for this purpose an instrument which is a modification of the haemostatic scalp forceps employed in cranial surgery. It is passed through the cervix and applied to the scalp where it presents over the internal os, traction being maintained, as in the case of the bag or the half-breech, by means of a weight attached to the handle. He has used it in vertex cases where the os is dilated enough and the placenta does not lie completely over the os. It arrests bleeding while it allows labour to proceed naturally. Dilatation of the cervix is assisted and uterine contractions are stimulated. He finds that it inflicts little damage upon the scalp beyond the formation of a cephalhaematoma. I have no personal experience of its use, but the method appears to be simple and applicable to those cases in which the cervix is not sufficiently dilated to allow the bringing down of a leg.

### *Caesarean Section.*

We have now to consider the arrest of haemorrhage and delivery of the patient by emptying the uterus through the abdominal route, so that all vaginal manipulations are avoided. The operation puts an end to the haemorrhage, and at the same time overcomes the risk of further bleeding during the subsequent delivery, which is at once accomplished. In the more difficult cases it gives the best chance to the child and it avoids for the mother any risk of lacerations of the cervix. These arguments, in addition to the ease with which it can be carried out, have led some observers to suggest that slight and suitable cases of placenta praevia should be treated by rupture of the membranes, and others by Caesarean section.

Watson and Miller[8] of Edinburgh, in a statistical analysis of 254 cases of placenta praevia, most of which occurred in the Royal Maternity Hospital, and including several who had come in from a distance in a moribund condition, had a maternal mortality of 25—that is, 9.8 per cent. Of these 25 maternal deaths, 13 were due to ante- and post-partum haemorrhage, 6 to sepsis, and one each to myocarditis, eclampsia, duodenal ulcer, post-partum collapse and mania, embolism, and ante-partum haemorrhage, the last two dying undelivered. The foetal mortality was 64 per cent.

The placenta was central in 81 instances; of these there was a maternal mortality of 22 per cent. and a foetal of 82 per cent. The placenta was partial in the remaining cases, the maternal mortality being 4 per cent. and the foetal 59 per cent. They state that a consideration of the results of the different forms of treatment adopted appears to show that the best results, both for mother and child, are by the two extremes of treatment—that is (*a*) *conservative*, with either no intervention or a minimum of intervention, such as rupture of the membranes and plugging, and (*b*) *radical*, by Caesarean section. They found it was in patients treated by intermediate methods, such as plugging, together with version or the bag or other methods, that the high mortality occurred. Thus of 61 slight cases treated by conservative methods with the minimum of intervention only one mother died, and that from eclampsia, and the foetal mortality was 41 per cent. Of 14 cases treated by Caesarean section only one mother and one foetus died, giving a mortality rate of 7.1 per cent. in both. On the other hand, of 179 patients treated by the vaginal pack, together with version or the bag or other methods, the maternal mortality was 13 per cent. and the foetal 81 per cent.

This raises the advisability of relegating some of these patients in the intermediate group to the more conservative methods and others to the more radical, leaving a residue of some, upon whom conservative measures have failed, to the intermediate methods. They strongly emphasized the value of Caesarean section in the more severe type of cases. In the case of an elderly primigravida with a central placenta praevia it offered the only hope of a living child and entailed less risk to the mother. They consider, therefore, that the scope for Caesarean section might be increased and its wider adoption would tend to diminish the present high mortality rate for both the mother and foetus.

Conrad[2] performs the operation if the child is likely to survive, and gives a maternal mortality of 9.8 per cent. and foetal of 50 per cent. Schweitzer[7] thinks that Caesarean section will be the treatment of the future wherever conditions are good. Ganssle[4] regards it as the ideal treatment provided the child is living and viable and there is no obvious sepsis. He gives a maternal and foetal mortality rate of 6.4 per cent. by Caesarean section, and 8.7 per cent. maternal and 54.3 per cent. foetal when vaginal methods of delivery were employed.

Jellett, in a spirited reply to Watson, points out that the maternal mortality in a series of 264 cases was only 3 per cent. when treated by the vaginal methods of either rupturing the membranes or of pulling down the leg, which figure is far below the results from Caesarean section. He lays special emphasis upon the following points in comparing

and the placenta is not easily reached—except for such "slight" cases the patient requires so much attention, so much time and care, that institutional treatment in either a hospital or nursing home is essential.

We come now to a review of the various methods of treatment and to their application, having regard to the general principles which we have just considered.

### *Rupture of Membranes and Application of Abdominal Binder.*

The object of this method is to bring pressure upon the placental site by allowing some of the liquor amnii to escape so that the uterus may drive down the presenting part and compress it against the lower uterine segment. It is a simple method which can be carried out, not only easily, but with little risk of causing fresh bleeding during the necessary manipulation. It will clearly be suitable if strong pains are present, if the cervix is well dilated—that is, the patient is in active labour—if the placenta is not over the internal os, if the membranes can be reached easily, and the lie of the foetus is longitudinal. In such cases it is the ideal treatment. But its employment must be limited to such cases, as it is unsuitable if the cervix is not dilated and pains are absent, for an attempt to rupture the membranes might then result in causing further haemorrhage or stripping up of the membranes only; also, in the event of being successful in rupturing the membranes, it would be by no means certain that uterine contractions would follow. No pressure would then be exerted upon the placental site, and, if too much liquor amnii escaped, version, if thought desirable, might not be possible to effect.

In the presence of uterine contractions and an open cervix it is wiser not to delay the rupture of the membranes for too long if the margin of the placenta can be felt fairly easily, for further haemorrhage is likely to occur as the cervix continues to dilate, and so to bring about further stripping up and exposure of the placental site.

Schweitzer[7] states that out of 333 cases of placenta praevia 22 partial cases were treated by rupture of the membranes with no maternal mortality; and according to Bourne,[1] of 17 cases treated at Queen Charlotte's Hospital by rupture of the membranes, with or without an abdominal binder, there was also no mortality of the mother. The foetal death rate for both marginal and lateral cases treated by rupture of the membranes was only 26 per cent., including all children irrespective of their maturity. The method is therefore an ideal one, but it is necessarily limited in its application to a certain group of cases in which strong pains are present, the cervix is dilated, the lie is longitudinal, and the placenta is not easily reached. For these it is all that is required and is to be strongly recommended; it entails little interference and the results are good. If the vertex is presenting, a firm abdominal binder is applied; if the breech is presenting, a leg should be brought down after rupturing the membranes, and in either case the labour is then allowed to proceed naturally. But for other cases in which the placenta is easily felt and in which uterine pains may be absent, some other method must be employed.

### *Vaginal Plugging.*

The temporary arrest of the haemorrhage is here effected by the combination of pressure of the vaginal plug from below and the abdominal binder from above. The method acts further by stimulating uterine contractions, and allows the cervix to dilate. It is advisable first to rupture the membranes, or uterine contractions are not certain to come on soon. It must be carried out under the strictest precautions against sepsis, and it requires an anaesthetic.

At first sight the method presents many advantages. It entails no intrauterine manipulations, and its application is not so likely to bring on further bleeding as is any method which entails an instrument or the fingers being passed through the cervical canal; the size of the os is immaterial, and there is not the same danger of lacerating it or the lower uterine segment; no special apparatus is required, no damage is done to the foetus, and the mother is given time to recuperate if she is collapsed from a previous haemorrhage. But, on the other hand, the method possesses many disadvantages. Uterine contractions do not necessarily follow within a reasonable time; the plugging may have to be removed and renewed, the risk of sepsis is extreme; the tight plug may cause lacerations of the cervix and vagina, and bleeding may occur above the plugging. Moreover, it demands a set surgical procedure under anaesthesia in order to be carried out effectually. It cannot be carried out effectually by the practitioner unaided, and if not so carried out it is not only useless but it is a positive source of danger from the risk of sepsis and of bleeding above the plugging. I know of patients who have died as a result of both of these causes from ineffectual plugging.

The disadvantages of plugging, from the risk of sepsis and of internal haemorrhage, far outdo the advantages, and its use in placenta praevia is not only inadvisable but is strongly to be deprecated, unless it be as a very temporary expedient. Its use in accidental haemorrhage is another matter. Jellett,[5] quoting his experience at the Rotunda Hospital, Dublin, concurs in this view. He states definitely that it should not be employed in placenta praevia except in the rare instances where the cervix is not large enough to admit the finger; he regards it as a grave danger, and if it is necessary to use it, it must be removed within a few hours. Bourne[1] gives the following figures as the results obtained by plugging the vagina for placenta praevia at Queen Charlotte's Hospital between 1916 and 1922:

| No. of Cases. | Variety. | Mother Recovered. | Mother Died. | Good. | Child Stillborn. | Child Died. |
|---|---|---|---|---|---|---|
| 8 | Central | 6 | 2 | 0 | 7 | 1 |
| 14 | — | 14 | 0 | 1 | 7 | 5 |
| 17 | Lateral | 15 | 2 | 6 | 9 | 4 |
| 2 | Unstated | — | — | — | — | — |

This shows a total mortality (maternal) of 9.7 per cent. of 41 patients treated by plugging the vagina.

### *The Hydrostatic Bag.*

The bag is inserted into the uterine cavity, the membranes having been ruptured. Gentle sustained traction upon it arrests the haemorrhage by pressure upon the exposed placental site. It further helps dilatation of the cervix, and at the same time stimulates uterine contractions. The results of its use are claimed to be more favourable to the foetus than by pressure with the half-breech.

Its disadvantages are that it is not always available in case of emergency, or if available it may leak, as it is liable to perish. It also tends to displace the presenting part, and so may bring about complications from a malpresentation. Not uncommonly it is expelled from the uterus without the presenting part coming down and without fully dilating the cervix, so that there is a loss of continuity of pressure upon the placental site and the recurrence of bleeding above the bag. It further has the drawback that considerable haemorrhage may accompany its insertion. Nor does the medical attendant feel secure after its insertion, since it may be expelled too soon and bleeding occur above it. This entails, after its insertion, the constant attention and presence of the practitioner. For these reasons, although it is a good method provided the patient is in an institution, it is not suitable for the emergencies of general practice. It must be borne in mind also that it requires an anaesthetic, and should therefore not be used unless the patient is in a condition to stand a further anaesthetic should other manipulations be required, either to arrest haemorrhage or to deliver the foetus, after the bag has been expelled, such as the forceps or version. In 6 cases of placenta praevia treated by the bag at St. Bartholomew's Hospital it was expelled before the cervix was fully dilated in every case, thereby necessitating the use of other additional methods subsequently.

### *Plugging by the Half-Breech.*

In this method the bleeding is controlled by the pressure of the foetus itself against the placental site. Steady but gentle traction on the leg will not only control the bleeding

The patient returned on July 21st, 1924, as the trouble was, she said, recurring. Examination revealed a very slight swelling of the left lacrymal gland, but there was no narrowing of the orbital fissure, and no diplopia. There was an appreciable fullness of the upper half of the right parotid gland over an area 3 cm. in diameter. The left submaxillary gland was no longer palpable. The right lacrymal, right submaxillary, and left parotid glands remained unaffected. The treatment was repeated from July 21st to 25th, and she was asked to report early in October. She did not come on the appointed date, but wrote saying that she was an in-patient at King's College Hospital, suffering from a tumour of the spleen, but that her face was quite well. She was under the care of Sir Charlton Briscoe, whose house-physician, in reply to an inquiry as to the patient's condition, wrote:

"The patient was admitted here on August 25th, 1924. Spleen greatly enlarged, lower border below level of umbilicus, consistence hard, surface slightly uneven, edge sharp, not tender. Liver enlarged (lower border 2 inches below right costal margin), hard sharp edge, not tender. Ascites definitely present, but not marked. No oedema of feet; urine loaded with urates, no albumin. Wassermann test positive. The salivary and lacrymal glands appear to be quite normal at present.

*Blood Count.*

| | |
|---|---|
| Red cells | 3,440,000 per c.mm. |
| Haemoglobin | 68 per cent. |
| Colour index | 1 |
| Leucocytes | 1,600 per c.mm. |
| Differential count: | |
| Polymorphs | 42 per cent. |
| Lymphocytes | 56 " |
| Eosinophiles | 2 " |

The case is regarded as one of splenomegaly of the Banti type, associated with and probably irritated by a syphilitic infection."

*Case 2.*

A married woman, aged 41, was sent by Professor J. B. Bradbury of Cambridge to the Radium Institute for treatment. The disease had existed for about seven years, and had been slowly progressive. Some *x*-ray treatment had been given during 1925, with slight but transient benefit, and as the last exposures had failed to produce any improvement, radium treatment had been suggested.

When examined on March 10th, 1926, both parotids were found to be enlarged, each to the size of a small lemon, the covering skin was smooth and not implicated, and the swellings were firm and elastic. Some degree of movement of both parotids was possible. Both submaxillary glands were enlarged to the size of unshelled almonds, and were easily palpable through the floor of the mouth. They presented the same physical characteristics as the parotid glands. The palpebral glands were not definitely enlarged, but the mucosa of both upper eyelids was much congested, and the eyes watered a great deal. The salivary secretion was very deficient, and the patient complained of great and persistent dryness of the mouth. There was no history of syphilis.

Treatment was carried out by means of numerous half-strength applicators containing in all 240 mg. of radium element. These were screened with 2 mm. of lead, and so disposed as to procure an effective "crossfire" radiation. The total exposure was of thirty hours' duration, given at spaced intervals over a period of three days.

The patient came again for examination on May 27th, 1926. No trace of the swellings remained, and the flow of saliva had returned. She stated that the swellings began to diminish rapidly a few days after treatment, and had quite disappeared within three weeks. Wholly disinterested and unsolicited testimony to the efficacy of the treatment was afforded by the patient's son, a child of 8, who, gazing at his mother in some bewilderment a few weeks after her exposures, remarked, "Oh, mummy dear, your face has got so thin!"

The disease is rare, but cases are reported from time to time by competent observers. No specific line of treatment has ever been indicated; arsenic and iodides have been the drugs chiefly employed, and in some instances *x* rays have been found to be of service.

The cases here recorded are not absolutely typical, but it would appear difficult to classify them as anything other than Mikulicz's disease.

In both instances the condition was bilateral, but in one the lacrymal glands were not definitely attacked. In the other the disease was asymmetrical, affecting the lacrymal and submaxillary gland on one side, and the parotid gland only on the other. One patient had a definite syphilitic history, and the Wassermann reaction was strongly positive. The other patient had enjoyed good general health all her life.

The extremely rapid response to the treatment is undoubtedly due to the pathological nature of the malady—namely, an intense lymphocytic infiltration of the sustentacular tissue of the glands; the lymphocyte being of all cells the most susceptible to radium irradiation.

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# A NEW METHOD OF PREPARING TUBERCULIN.

BY

H. HYSLOP THOMSON, M.D., D.P.H.,

COUNTY TUBERCULOSIS OFFICER AND COUNTY MEDICAL OFFICER OF HEALTH FOR HERTS.

THE conclusions and recommendations in the following paper are based on the experience of tuberculin treatment in two series of cases, including both sanatorium and dispensary patients, during a period of ten years. In my experience tuberculin has proved of definite value in the treatment of certain forms of tuberculosis. When used in the sanatorium at the stage when the patient has become non-reactive to manual labour it provides a useful guide to the absence or presence of susceptibility on the part of the patient to relapse from overstrain, and, if tolerance has been established to increasing doses, it secures a definite although admittedly not a permanent protection against such relapse. In non-pulmonary tuberculosis the beneficial effect of tuberculin is frequently quite definite. Old tuberculous sinuses, discharging tuberculous glands, and localized lesions of the skin which have resisted other forms of treatment frequently yield in quite a striking manner to treatment with tuberculin.

In acute and active cases of the disease tuberculin has proved to be of little value, and is indeed contraindicated because of the disturbance to which it gives rise. In the less active or smouldering type of the disease, however, in which the temperature does not exceed 100° F., treatment with tuberculin TOA (filtrate) does in certain cases give good results by lowering the temperature and lessening the swing. In such cases treatment with tuberculin should be combined with strict rest in bed, but even in patients of this type who have not been confined to bed the beneficial effect of tuberculin TOA on the temperature has been noted.

The general conclusions regarding the value of tuberculin treatment are as follows: (*a*) Tuberculin is of no value, and is indeed contraindicated in the treatment of acute and active cases of pulmonary tuberculosis. (*b*) Inoculation with tuberculin TOA (filtrate) can safely be given in certain cases of subacute type in which the temperature does not exceed 100° F., and is indeed not infrequently followed by beneficial results, as is indicated by a lowering of the temperature to within normal limits. (*c*) Inoculation with tuberculin BE or TR containing the body of the bacillus or its contents is of value in ambulant cases of pulmonary tuberculosis which do not react to the muscular movements associated with walking exercise and manual work. (*d*) Tuberculin treatment induces complete healing in certain cases of non-pulmonary tuberculosis, especially those associated with a chronic discharging sinus. (*e*) Tuberculin treatment rarely promotes complete healing in pulmonary tuberculosis, but if used for an extended period in suitable cases it tends to induce quiescence, to encourage fibrosis, and to confer some definite protection against relapse.

It is doubtful whether the treatment of tuberculosis with tuberculin has received a sufficiently fair and extended trial in this country. The variety of tuberculins in use and the different methods of administration employed have militated against accurate treatment and satisfactory results. Too frequently treatment has been employed in quite unsuitable cases or has been discontinued because no immediate striking result has been obtained. In the preparation of tuberculin also methods have been adopted which are no doubt partly responsible for the absence of more definite and more immediately beneficial results. These methods are (*a*) the selection of an unsuitable strain of the tubercle bacillus as a basis for preparation; (*b*) the continued culturing of strains of tubercle bacilli on artificial media which differ in many respects from the natural medium found in the human or bovine host, with the result that an artificial strain of bacillus has been evolved; and (*c*) the employment of heat and chemical or physical agents for purposes of sterilization and extraction, which agents must modify the character of the toxic products of the bacilli elaborated in the culture medium during the process of growth.

the two methods: that the vaginal methods do *not* include the pack, *together* with version and the bag, as practised in Watson's statistics, but rupture of the membranes only in slight cases and version in the more severe. He regards the addition of the pack as a grave danger, and considers that no attempt should be made to dilate the cervix by the fingers; that the delivery should not be hastened unless the os is well opened and strong pains are present; and that the patient, once the haemorrhage has been arrested, must be allowed to recover before she is delivered.

We must also bear in mind that Caesarean section for placenta praevia has the special dangers of added shock, of further haemorrhage during the operation, and of sepsis.

In comparing the results from these two methods it is not only the actual method that we must consider but the manner of the subsequent delivery if the vaginal route is employed. Version and pulling down a leg is not of itself attended with much maternal risk, but it will be if the delivery is hurried and is not allowed to occur at a suitable time and to proceed at a slow rate. Caesarean section is obviously unsuitable in patients already suffering from shock and from severe haemorrhage. Here the indication clearly is to arrest the haemorrhage temporarily and to give the patient time to recover. But to deny all place to Caesarean section would be wrong. It is to be advised in the case of an elderly primigravida in good condition who is strongly desirous of a living child, in whom the foetus is alive at or near term, and the placenta covers the os, which is small and rigid. In such a case there is bound to be a considerable amount of inevitable haemorrhage; any vaginal manipulations necessary are certain to cause further haemorrhage, and the outlook for the foetus by the vaginal route is almost hopeless. By doing Caesarean section in such a case as this we can not only secure a living child, but considerably diminish the maternal risk.

### SUMMARY.

The views which I have put forward and discussed may be summarized as follows:

1. Early diagnosis is essential.
2. Once the diagnosis is made the pregnancy must be terminated.
3. "Slight cases" are best treated by rupture of the membranes and a tight abdominal binder.
4. Plugging is inadvisable, except as a very temporary measure.
5. Certain selected cases may be treated by Caesarean section.
6. Most cases are best treated by external version and plugging by the half-breech. The labour in this case must be conducted slowly.
7. Institutional treatment is necessary in all but the "slight cases."


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## TWO CASES OF MIKULICZ'S DISEASE TREATED WITH RADIUM.


BY

A. E. HAYWARD PINCH, F.R.C.S.,

MEDICAL SUPERINTENDENT AND GENERAL DIRECTOR, THE RADIUM INSTITUTE, LONDON.


IN 1892 Dr. Johann Mikulicz of Breslau published a paper[1] on a peculiar symmetrical disease of the lacrymal and salivary glands. Four years previously he had shown a case at a medical meeting in Königsberg. In this patient both lacrymal glands and all the salivary glands were converted into tumours in a perfectly symmetrical fashion, thrusting them out of their normal position, and deforming the face. The tumours had arisen gradually, and at the time of examination were dense, painless, and without a trace of inflammation. The patient exhibited no other sign of disease. The following is an abstract of Dr. Mikulicz's notes of the case.

### MIKULICZ'S CASE.

January 13th, 1888. The patient was a powerfully built, well nourished man of otherwise healthy appearance. Nothing abnormal was found in the internal organs. No albumin. No enlarged glands found elsewhere. The blood showed no special changes. Pulse and temperature normal. The face was extraordinarily altered in appearance by symmetrical swellings in the neighbourhood of the upper eyelids, and of the parotid and submaxillary glands. The orbital fissures were narrowed to small triangular fissures, the base of which was formed by the inner two-thirds of the edge of the lower lid. A certain amount of convergent strabismus had resulted from this condition.

On palpation a small knobby, dense tumour of transversely oval shape was found under the outer half of each upper eyelid. The conjunctiva itself was slightly reddened and a little thickened. The sight was unaffected. In the parotid area on both sides there was a flattish, not very prominent, and uniform tumour, extending forwards to the middle of the cheek, backwards to the mastoid process, and so lifting the lobule of the ear considerably. In each submaxillary region was a tumour about as long as a hen's egg, of dense consistency, and slightly movable. The two tumours almost met in the middle line under the chin. On opening the patient's mouth the sublingual glands presented as two elongated swellings about the shape and size of an almond set on its edge, and occupying the floor of the mouth on both sides of the frenum linguae. The glands of the soft palate exhibited an enormous increase in size, forming a sharply defined tumour as big as a chestnut on both sides, and being separated by a groove 0.5 cm. wide in the middle line. During the examination of the patient there was a free secretion of saliva, though there was no appearance of a flow.

As the swelling of the eyelids was the only thing which caused the patient much discomfort, a partial removal of the enlarged lacrymal glands was undertaken on February 1st, 1888. On either side a mass of tumour, about 2.5 cm. long by 1.5 cm. broad, was removed. Healing was normal, and the patient left the hospital in a few days, well pleased with the result. The improvement was, however, very transient; the swelling of the upper eyelids speedily recurred, and the patient returned to hospital at the end of March, the swelling of the lacrymal glands being then nearly as large as before the operation. Pilocarpine was injected in the hope that an increased secretion might reduce the size of the glands. No benefit resulted, and on April 19th the right, and on May 1st the left, lacrymal gland was extirpated. The patient made an excellent recovery, and was discharged ten days later.

He wrote on July 12th, 1888, that he was well pleased with his condition, and that he had no trouble with his eyes. The parotid glands appear to have gone on increasing in size, but they did not bother him. He died of perityphlitis early in August, 1888, after nine days' illness. During his illness the parotids rapidly diminished in size, and at the time of his death were almost normal.

Microscopical examination of the lacrymal glands removed by operation showed that the proper gland parenchyma played a purely passive part, and that the increase in size was due entirely to a voluminous infiltration of the interstitial connective tissue by small round cells (lymphocytes).

Two cases of what appears to be the same disease have been seen recently at the Radium Institute, London.

### TWO NEW CASES.

*Case 1.*

A married woman, aged 62, was first seen on January 21st, 1924. She was referred to the Radium Institute for treatment by Mr. H. P. Gibb, F.R.C.S. She had consulted him for diplopia, which had existed for about eight weeks, and was obviously due to downward displacement of the left eyeball by an enlarged lacrymal gland. No very definite history could be elicited from the patient, but she thought that the swelling beneath the left upper eyelid had begun to be noticeable about nine months previously. She volunteered the statement that she had been in hospital in 1922 for a tumour of the spleen; but no further or more detailed information could be obtained.

The left lacrymal gland, which was the size of an unshelled almond, had displaced the contents of the orbit downwards and inwards, and the orbital fissure was much narrowed; diplopia was very marked. In the right parotid was a swelling the size of a golf ball; it was smooth and elastic, not fixed, and did not implicate the covering skin. In the upper part of the right parotid region was a small scar, indicating the site at which a portion of the growth had been removed for a pathological examination. The pathologist reported "lymphocytic infiltration of the tissues." The left submaxillary gland was swollen to the size of a thrush's egg. The right lacrymal, right submaxillary, and left parotid glands were unaffected. No enlargement of the spleen was appreciable. The blood count was normal. The Wassermann reaction was strongly positive.

The patient received a series of five sittings each of five hours' duration on five successive evenings, with applicators containing 120 mg. of radium element, screened with 2 mm. of lead, applied over and around the enlarged glands, so as thoroughly to irradiate them. The last exposure was given on January 25th, 1924.

She was examined again on March 24th, 1924. The swellings in the left lacrymal, left submaxillary, and right parotid glands had completely disappeared. The left orbital fissure was as widely open as the right, and there was no longer any diplopia.

described above. I submit the following proposals for further investigation:

1. The preparation of suitable media of human and bovine material containing unheated blood serum.
2. The evolving of a vigorous strain of tubercle bacilli which will grow on human and bovine media which are not sterilized by heat.
3. The elimination of autolysis in such media and investigation into the possible action of autolytic enzymes on the tubercle bacillus.
4. The preparation of a tuberculin by the method described above.
5. Preliminary investigations to be carried out with bovine tubercle bacilli on media of bovine material.

In conclusion I have to express my thanks to Professor Tulloch for his valuable advice and assistance, and to Dr. Cumming for the time and labour he has given to the preliminary investigation.

## A CASE OF TRANSVERSE ECTOPIA OF THE TESTIS.

BY

A. GRAY BANKS, M.D.GLASG., F.R.C.S.ED.,

SURGEON, EAST SUFFOLK AND IPSWICH HOSPITAL.

THE interest of the following case is increased by the note Sir Arthur Keith has been good enough to append.

A man, aged 28, married three years, no children, was admitted to the East Suffolk and Ipswich Hospital in December, 1925, with a painful swelling in the left groin. Eighteen years earlier an operation for left inguinal hernia had been performed in the same hospital, but details are unobtainable. He had been aware of the lump ever since the operation and had noticed it becoming gradually larger, more superficial, and moving downwards. Nine months ago he had an attack of acute pain after lifting a heavy weight, and the lump became tender and swollen, and had remained more or less tender since. Two further attacks of pain occurred, one three months, and the other three weeks ago. On each occasion micturition was frequent for about two days; between the attacks there were no urinary symptoms. Sexual power developed when he was about 14, and has been normal since.

He was a spare, vigorous, active-looking man of good intelligence; the secondary sexual characters were well developed. A linear scar of old standing was present over the left inguinal canal, and lying at the external ring just below the pubic spine was a firm ovoid swelling about the size of a walnut, slightly movable and tender on pressure. The scrotum was small and contained only one testis (left), from which an easily palpable cord could be traced upwards. The right side of the scrotum was empty, and no opening could be felt at the usual site of the external ring (the entire absence of any weakness here was confirmed by intra-abdominal palpation during the operation).

*Operation.*

An oblique incision was made over the inguinal canal and the swelling identified as a testis (although at first sight the appearance suggested an ovary). It had a well marked tunica vaginalis. From the upper border of the testis a fold of fascia and peritoneum, forming a definite mesorchium and having a cord-like structure with fimbriated end along its free edge, entered the peritoneal cavity through the ring and crossed obliquely over the bladder as a lax membrane to the opposite pelvic brim, where it was attached about the point of bifurcation of the iliac artery.

The left testis was drawn out of the scrotum and examined. It was rather undersized, devoid of a tunica vaginalis, and on incising the tunica albuginea a normal testicular appearance was seen; the vas deferens of this testis was adherent to, and partially embedded in, a firm structure about a fingerbreadth thick, which ran upwards from the testis, through the inguinal opening, and down extraperitoneally along the left side of the bladder towards the base. In the intra-abdominal part of its course both vasa deferentia were embedded in it, the left more intimately, so that they could be dissected out only with great difficulty. When opened it was found to have a cavity admitting a fair-sized probe, the wall about a quarter of an inch thick, rugose, and apparently lined with endothelium.

The distal part was excised, about one to one and a half inches being left to avoid injury to the associated left vas deferens. The ectopic testis was removed with the accompanying fold, the cord having been freed from the above mentioned structure as far as possible, and the oblique muscles and skin sutured. The wound healed by first intention and the patient was perfectly comfortable on discharge two weeks later. A cystoscopic examination was refused.

Serial sections of the ectopic testis, kindly made by Sir Arthur Keith, showed only testicular tubules—no mixture of sex. "No spermatozoa are to be found and none in process of formation. The interstitial tissue is normal in amount (A. K.)."

The excessive rarity of the condition is shown by the fact that apparently only four cases of transverse ectopia are recorded.

1. Lenhossék in 1845 first described the condition in a man of 35 with two testes in the left half of the scrotum, the right lying a little higher than the left, in front and medianward. The vasa deferentia were closely united but distinct, the tubes separating only near the prostate.

2. Max Jordan in 1885 reported a case in a child of 8. There were two testes in one patent vaginal process with one vas which divided higher up. The testes were in the left half of the scrotum and the united vasa had coalesced for the greater part of their length.

3. Berg in 1901, operating on a congenital left inguinal hernia in a boy of 13, found two testes—one normal in a well developed scrotum, and the other, almond size, at the left ring. Both cords were intimately connected with the hernial sac; the ectopic cord had a distinct mesentery and passed up across the space of Retzius to the right inguinal region, whence it descended to the pelvis. The right ring was palpated and found closed.

4. Halstead (1907) records a case with two small testes and a large left inguinal hernia; the epididymes were fused, but the vasa deferentia were distinct up to the region of the internal ring where they were united.

NOTE BY SIR A. KEITH.

The abnormal structure found passing upwards from the testis, and descending to the base of the bladder, can only be the result of fusion and persistence of the Müllerian ducts, forming a uterus masculinus of unusual size and persistence. If this were drawn down into the hernial sac, as is quite possible, it would bring with it the attached undescended right testis. The vasa deferentia should be embedded in the "structure," exactly as found at operation. This, I think, is the true interpretation, not a double or dichotomous condition of the left testis.

It is to be supposed, therefore, that in this patient there had been a persistence of the stage reached and usually passed through in the third month of development.

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## NEPHRO-URETERAL ANASTOMOSIS AFTER COMPLETE AVULSION OF THE URETER.

BY

R. CAMPBELL BEGG, *M.C.*, M.D., F.R.C.S.ED., M.Sc.N.Z.,

GENITO-URINARY SURGEON, WELLINGTON HOSPITAL, N.Z.

A MAN, aged 42, was referred to me on January 19th, 1926, complaining of constant pain in the right loin. It had existed with varying intensity for many years, but he had had nothing in the nature of an attack of renal colic. Investigation showed that there was a round calculus in the right renal pelvis, and that the urine was infected with *B. coli* and was delivering pus. The kidney function, however, by dye tests showed that there was only slight loss of function on the right side as compared with the left. In the latter, indigo carmine, after intravenous injection, appeared in strong concentration in five minutes, while the dye did not appear till six and a half minutes from the right side, but the concentration was good. The calculus appeared to be about 1 cm. in diameter, so pyelo-lithotomy was advised.

*Operation.*

On February 12th the kidney was exposed with some difficulty owing to its high position; a portion of the twelfth rib had to be resected. The organ seemed healthy except for one or two points of subcapsular scarring. The pelvis was mostly intrarenal and the calculus was lying just outside the hilum, while immediately below it a ureter of normal calibre passed downwards. The calculus was removed by a vertical incision. The walls of the pelvis seemed to be very thin and there was a ring of ulceration where the stone had been lying. An attempt to stitch the walls of the incision with the finest round needle and catgut resulted in every stitch pulling through. My assistant had to exercise a certain amount of tension on the kidney to keep the field in view, and suddenly the ureter came completely away from the pelvis at the line of the circular ulcer. The line of separation was very close to the kidney, and the little pelvic tissue available for anastomosis was so friable that an end-to-end junction was impossible; after some attempts at this there remained no extrarenal pelvis, but merely a few bits of ragged tissue around the orifice of the renal sinus. Nephrectomy was considered, but owing to the comparatively good renal function present seemed undesirable. The ureter was not dilated and had good muscular walls. A No. 6F catheter

The general principles underlying the following method of preparation are the employment of a culture medium containing blood serum unsterilized by heat, so as to provide a medium as nearly as possible similar to that which obtains in the human body, and the inclusion of part of the filtrate in successive subcultures. It is necessary to emphasize the importance of several factors which are regarded as essential to the preparation of the tuberculin. These are (*a*) the preparation of a suitable culture medium containing sterile but unheated blood serum of human origin for bacilli of human type and of bovine origin for bacilli of bovine type; (*b*) the employment of a strain of human and bovine bacilli obtained from an acute or systemic type of the disease; (*c*) the evolving from this by culturing and subculturing of a strain of tubercle bacilli which will grow actively on the media of human and bovine material before proceeding with the preparation of the tuberculin; and (*d*) the avoidance in the preparation of the tuberculin of any measures which are likely to interfere seriously with the character of the final filtrate.

The general technique of the method recommended in the preparation of tuberculin of human origin is as follows:

(*a*) The growth of the special strain of tubercle bacilli on a medium containing unheated blood serum. The morphological, cultural, staining, and pathogenic characters of the bacilli and the toxic and infective properties of the filtrate to be investigated.

(*b*) A subculture from (*a*) on a medium comprised of unheated blood serum and an equal portion of the filtrate from (*a*). A similar line of investigation to be carried out.

(*c*) A subculture from (*b*) on a medium comprised of unheated blood serum and an equal portion of the filtrate from (*b*). A similar line of investigation to be carried out.

(*d*) A subculture from (*c*) on a medium comprised of unheated blood serum and an equal portion of the filtrate from (*c*).

The extent of subculturing will depend upon the growth obtained and the results of the investigations as to the character of the bacilli and the filtrates in the various subcultures. In the method described above the inoculum is taken from each previous culture, but an alternate series of experiments would be necessary in which a fresh inoculum from the original strain on each of the successive series of media is employed. The possibility of stimulating the growth of the bacillus in the various subcultures by oxygen or other means should be considered. The tuberculin, when completed, will consist of two portions: (*a*) the final filtrate, and (*b*) the final filtrate combined with an emulsion of bacilli from the final culture. The final filtrate should not be sterilized by heat but by repeated passing through a Chamberland filter, and experimental work would be necessary to prove that it does not possess pathogenic properties. Should experiments prove that in spite of repeated filtration it possesses pathogenic or infective characters, sterilization by some other means, such as by exposure to ultra-violet rays, must be considered. The tubercle bacilli forming the emulsion would require sterilization by heat before the final filtrate is added to constitute (*b*). The keeping properties of both (*a*) and (*b*) should be tested by prolonged incubation.

The aim of the above investigation is twofold. In the first place to obtain and to test a tuberculin composed of reinforced filtrate alone and of the same filtrate in combination with the bacillary contents prepared under conditions as nearly as possible approximating those under which the bacillus grows and develops in the human body. Secondly, to throw some further light on the life-history of the tubercle bacillus and on the character of the toxins elaborated by the organism in the process of growth under natural conditions.

If we attempt to visualize the life-history of the tubercle bacillus in the human body we are forced to accept the following conclusions: (*a*) That in the process of development and multiplication the bacillus at the outset elaborates exotoxin, and that it grows and matures on a medium of gradually devitalized human tissue and blood lymph which contains exotoxin. (*b*) That at some period during the life-cycle of the bacillus endotoxins are set free either by a process of extrusion in consequence of interference with the integrity of the fatty envelope or by a destructive process arising from the action of bacteriolysins or autolytic enzymes. The clinical features in the early and more advanced stages of the disease can only be explained by some such conception with wide variations in the conditions required for the development and completion of the process.

In January, 1924, I submitted an outline of the method described above for the preparation of a tuberculin to Professor Tulloch of St. Andrews University, who kindly arranged for Dr. Cumming, who was working in his bacteriological department, to make a preliminary investigation as to the possibility of preparing a tuberculin by the method suggested. Professor Tulloch thought that before proceeding to investigate the growth on human media—the constituents of which are difficult to obtain—a technique should be elaborated on bovine material. The main results of the preliminary investigation by Dr. Cumming are briefly as follows.

"1. It has been found that even strains of tubercle bacilli which have become accustomed to glycerinated media, both bovine and human, grow reasonably on 1–4 non-heated sterile rabbit plasma with no addition of fresh tissue and no glycerin.

2. A very careful aseptic technique was elaborated for the growth of bovine tubercle bacilli on a cone-shaped island of fresh ox heart one inch high and three-quarters of an inch in diameter at the base, in a layer of prepared ox heart extract from one to one and a half centimetres in depth in specially made bottles.

3. In the above and subsequent experiments different dilutions of serums and different diluents (saline, Locke's solution, etc.) were used along with an inoculum of human and bovine strains from human lesions and bovine strains from bovine lesions with practically always perfect results as far as asepsis was concerned, but always with disappointing results as regards growth of the tubercle bacilli.

4. The reasons for these disappointing results appeared to be due to the fact that when these bottles of serum and tissue were incubated autolysis of the tissue took place, with the result that the growth of the tubercle bacilli was thereby inhibited.

5. In one series of experiments growth (of a kind) was obtained in four successive generations, using in each case equal parts of fresh medium and filtrate from the previous batch. In these it was shown that the tubercle bacilli in the fourth generation had not been altered as regards morphology, staining reaction, cultural reactions, or pathogenicity, and that the final filtrate had only very slight antigenic properties, as evidenced by Koch phenomenon.

6. It was further found that the strain of tubercle bacilli employed did not grow so well on fresh human serum sterilized by candlings as was expected. Dr. Cumming was not able to satisfy himself that this was due entirely to the fact that the strains had been cultivated practically exclusively on glycerinated medium."

In the above summary of the results obtained in the preliminary investigation the one difficulty which at the outset has militated against success has been inability to obtain a vigorous growth of tubercle bacilli on sterile but unheated media of human and bovine material. In one series of experiments with a bovine strain and bovine material a somewhat feeble growth was obtained in four successive generations, using in each case equal parts of fresh medium and filtrate from the previous culture. The fact that such growth was obtained indicates the desirability of further investigation as to the possibility of obtaining a more vigorous growth on successive filtrate media.

The difficulty experienced in obtaining an active growth of tubercle bacilli on fresh human serum is significant and tends to support the thesis submitted in this paper. It emphasizes the necessity of further investigation in the direction of elaborating suitable unheated culture media of both human and bovine material with a view to the evolution of a special strain of tubercle bacilli which will grow vigorously on such media. The question of material of human origin for the preparation of suitable media may present some difficulty, but in the healthy human placenta there is to be found an inexhaustible source of supply.

A further important difficulty met with in the experiments was the inhibition of the growth of the tubercle bacilli in the bovine medium by the occurrence of autolysis of the tissue constituting part of the medium. This was no doubt due to the action of autolytic enzymes in the sterile but unsterilized cone of ox heart in the presence of unheated heart extract or blood serum. Sterilization of this tissue before use as an island for inoculation would prevent autolytic action taking place and would not seriously interfere with the experiment.

Owing to the absence of facilities it has not been found possible to continue this investigation beyond the point

tion by a filter-passer and towards the neoplastic theory. A single filter-passer would not meet the case; there must be several, each capable of causing the proliferation of different varieties of leucocytes, and of such difference in virulence as to cause the death of the patient at periods varying from a week or two to ten years or more. For it must be remembered that leukaemia is always fatal in the long run, which cannot be said of any organismal disease with the same certainty. We have elaborated this argument fully elsewhere,[1] but I realize that the last word has not yet been said.

I hold the view that leukaemia is a sarcomatosis of the leucocytes, and that tumours would be formed by them more often than is actually the case were it not for the mobility of the cells and their non-cohesiveness—the fact that they permeate all fluids and tissues without forming or being a tissue in the proper sense. In leukaemia accidental tumours are formed in the skin, in the glands, in bone, and so on, as everyone knows; but the true tumour in the disease is the proliferation in the marrow, and the metastatic overflow thence into the blood, organs, and tissues. The leucocyte is the gipsy among cells; the body, for its own purposes, forms traps to hold it—marrow, lymph glands, and so on—and encourages it to proliferate there, but it is always eager to be off on its own business.

It is true that to call leukaemia a neoplasm is merely to explain the known by the unknown. We know next to nothing of the causes of tumour growth, and none, either of the modern theories or of the older ones of irritation, seems to be specially applicable to this disease. It seems always to start *de novo*. But it is equally true that while we know a good deal about the behaviour of leucocytes in disease, especially about their response to organismal and other poisons, we know very little about their behaviour in health. In particular we do not know what influences maintain their numbers and proportions in the blood at so constant a level—so constant that a variation in number of a couple of thousand per cubic millimetre or an alteration of 10 in percentage at once sets us looking out for some pathological condition.

We are tempted to think of endocrine influence, but there is little to support this. The absolute or relative lymphocytosis which occurs in some cases of Graves's disease is almost the only more or less constant alteration that occurs in any form of endocrine disturbance that is known to us. It is open to anyone to maintain that the pineal, carotid, or coccygeal gland regulates leucocyte number.

Food certainly has some influence, probably both through the amount taken and variations in the kind of food, and one may assume that poisons present in the blood on their way to excretion or destruction must have some effect. These poisons may be metabolic or absorbed from bacteria present in the hollow viscera. But if these are the only factors—they are the only obvious ones—it is curious that they should be so well balanced. There is probably some other regulating factor, and it is possibly disturbance of this which is responsible for leukaemia.

Leukaemias may be classified according as one looks at them from the clinical standpoint or the pathological. Clinically they are acute or chronic; pathologically, regarded from the cells found in excess in the blood, the acute forms may be myeloblastic, lymphocytic—if these are really different—and myelocytic or promyelocytic; the chronic forms myelocytic and lymphocytic or lymphatic. The chloromas, as far as the blood is concerned, fall into one or other of these classes.

We have adopted the classification into granular and non-granular types as follows:

| Non-granular: | Granular (acute or chronic): |
|---|---|
| Myeloblastic (acute). | Mixed. |
| Lymphatic (acute or chronic). | Chloroma. |

This classification, however, like any other, is merely a matter of convenience, and expresses a personal view. It is hard to get rid of such old terms as spleno-medullary, and acute lymphatic as applied to the myeloblastic form.

Much more important than classification is it to try to understand what lies behind the different forms—why some are acute and others chronic in their course, why some show a million leucocytes per cubic millimetre and others a few thousands. To follow this we must briefly consider the phylogeny of the leucocytes and their relations to one another. The most primitive form is the myeloblast or lymphoidocyte, which is probably the precursor of all the others, and which remains throughout life in certain numbers in the bone marrow, though it probably does not take any active part in the production of the different series except in pathological conditions. The four series develop in much the same way. The mother cell of each is a leucocyte with large rounded nucleus and relatively small amount of cytoplasm. In the lymphocyte series this is known as the large lymphocyte. Its mitosis produces the small lymphocyte, which again becomes a large one, and which may further develop into the large mononuclear or hyaline cells, and the transitionals, which last are the "ripe" form. In the three "granular" series there is this difference from the lymphocyte series—that a promyelocyte form with scanty granules is inserted between the myeloblast and the myelocyte, which latter is the functional equivalent of the large lymphocyte from the reproductive point of view in normal conditions. It is in these cells that mitosis is most frequently seen in the marrow. The rounded nucleus of the myelocytes in those destined to develop further becomes kidney-shaped and horseshoe-shaped, from the action of the centrosomes and astrospheres, or rather of the radii passing from them, and ultimately the "ripe" polymorphonuclear form is produced in each series. It is this form alone which is really adapted to rapid amoeboid movement, though it occurs in all the forms to a greater or less extent. It is to a certain extent a misnomer to speak of the lymphocytes as non-granular, as all the forms contain azurophil granules. The term "non-granular" is a legacy from the triacid stain and the eosin-methylene-blue mixtures of early days, but it has remained, as it is practically convenient.

The leukaemic process may affect this development at almost any point and in any series. But there is this striking peculiarity—that in the chronic granular forms all the series are affected, though not usually to the same extent. That is to say, all the cells normally present in the marrow—myeloblasts and lymphocytes as well as the ripe and unripe cells of the granular series—appear in excess in the blood, and of course that means that there is a great proliferation of all the forms in the marrow. Most commonly the neutrophil series preponderates, but the proportions differ greatly in different cases, and even in the same case from time to time, even from day to day. It is difficult to explain why this should be so. If the variations occurred only in early cases one might conclude that they represented the involvement of fresh areas in the marrow by the various types of cell; but they occur also in fully developed cases, which have been going on for years, and in which probably the whole marrow has long been affected. It is difficult also to understand why myeloblasts and lymphocytes should increase. Is it a result of the same stimulus, or is it a reactive phenomenon, like the formation of the stroma and the fresh blood vessels in true tumours?

The acute granular forms are so rare that it is difficult to generalize about them, but they are probably in most cases promyelocytic rather than myelocytic. They also drag in myeloblasts. One must be careful, however, not to attach too much importance to the occurrence of a few myeloblasts in the circulating blood. They appear in any condition in which there is profound marrow disturbance—in pneumonia and other conditions causing leucocytosis, in pernicious anaemia, and even in severe secondary anaemias. It is difficult to say whether they appear in these conditions in response to chemiotactic influence, or as the result of mechanical disturbance.

The chronic non-granular form, or chronic lymphatic leukaemia, is unfortunately rare, for it is in some ways the most interesting variety and deserves very full study. It may be extremely chronic. I have seen at least three cases in which the enlargement of glands had lasted for ten years or more, though the blood had not been examined. Others show little enlargement of glands, but have large spleens, and in them also the blood, when they come under

was passed butt-end first down the ureter into the bladder and the other end into the upper major calyx. The upper end of the ureter was split for half an inch on its outer surface and by means of stitches carried from it through the intrarenal pelvis and out through the kidney substance, so that the margins of the tube were approximated roughly to the frayed walls of the pelvis. A capsular flap was turned down to cover the junction. To ensure adequate drainage the pelvis was opened from the cortex and a drainage tube tied in. The free end of the catheter in the bladder was recovered and pulled through the urethra by means of flexible forceps through an operating cystoscope. The catheter was allowed to remain in place for seven days and the urine drained through the nephrotomy wound. At the end of that time there was spasm of the ureter on the right side and the ureteral catheter was removed.

Urine began to pass down the affected ureter, as evidenced by blood in the urine and a marked diminution in the leakage from the loin. On the tenth day a catheter was passed up the right ureter and met with no obstruction. Oxycyanide was injected through the catheter and out through the loin. In six weeks the wound in the loin was healed and all the urine was passing through the normal channel. Cystoscopy showed that the effluxes were normal, and a large ureteric catheter passed into the pelvis of the kidney without obstruction. The pelvis could be distended to 10 c.cm. and then caused discomfort. Indigo carmine given intravenously appeared from the left side in strong stream in three minutes and from the right in only moderate concentration in seven minutes. The calculus was of oxalate type, almost exactly spherical, and 9 mm. in diameter.

At the date of writing (June 3rd) the patient states that he has no trouble and is carrying on his work, but that he had one attack of renal colic after returning home.

In cases where the kidney is high the proper exposure of the ureter and pelvis for operations on the pelvis may require a good deal of tension to pull the kidney forward and expose the posterior aspect of the pelvis. This can be obviated to some extent by carrying the lower part of the incision almost horizontally inwards instead of obliquely downwards and inwards. Such a catastrophe as occurred in the case reported, however, is unlikely to occur except where the pelvis is extensively ulcerated and its walls thinned. The question arises as to whether the incision should be made down to the calculus through the extrapelvic fat without dissecting this away, so as to display the wall of the pelvis. It has been claimed that this technique gives quicker healing and is less likely to leave a urinary fistula. My own experience has been, however, that the quickest results are obtained by exposing the pelvic wall, and after careful suturing bringing a fat or capsular flap across, though it is probable that where any difficulty is experienced in sewing owing to the friable nature of the tissues the wound closes without any suturing at all if attention is paid to dilating the ureteral canal at the time of the operation and afterwards. To be forced, owing to an operative mishap, to remove a sound though slightly infected kidney in a case of stone is a disaster of the first magnitude, owing to the possibility of subsequent formation of calculus on the other side. An improvement in technique in this case would have been to pass the upper end of the splint catheter through the nephrotomy wound so as to give perfect control of both ends and prevent the possibility of the instrument coming out too soon.

## ECZEMA AND DENTAL DISEASE.

BY

A. ANNESLEY GOMES, F.R.C.S.I., D.P.H.,
L.D.S.R.C.S.Eng.,
BURNLEY, LANCASHIRE.

Theories of the etiology of eczema may be stated briefly as: (1) neurotic, (2) local irritation, (3) thyroid deficiency, (4) toxic. The last is perhaps the most popular. The toxins occur in connexion with (*a*) constitutional diseases —for example, gout, diabetes; (*b*) chronic Bright's disease; (*c*) certain diseases of the liver; (*d*) alimentary tract. While mentioning the alimentary tract most writers limit the suggestion to the gastro-intestinal portion of it, for imperfect metabolism and malassimilation are thought to be the cause. The importance of the oral part seems to be little recognized. Macleod admits that digestive derangements may aggravate the disease, but says there is no evidence that they cause it *de novo*. French writers, he says, consider eczema a cutaneous manifestation of a diathesis not yet defined, and Brocq calls it "eczematization," the symptom, rather than eczema, the disease. Given a diathesis or predisposition, the toxins arising from certain dental diseases can cause the manifestation of eczema or aggravate it if it already exists. The dental poisons may be absorbed in two ways: (1) by swallowing the pyorrhoea or other septic discharges from diseased dental tissues; (2) by direct passage into the general circulation of toxins from septic foci concealed in the bone related to the teeth. The immediate recovery from an illness previous protracted, which I report here, proves this conclusively.

A man, aged 44 at the time, had recurrent attacks of eczema beginning at about the age of 37. The last attack was of eighteen months' duration. It was intractable and increasing in severity. After persistent treatment by his family doctor and the consultant there was, according to the patient, only a slight improvement. His doctor now began to suspect oral sepsis. When I first saw the patient the eruption extended literally from head to foot in all its forms: redness, vesication, exudation, and crusts variously distributed. Examination of the mouth revealed general periodontal disease. There were pyorrhoea and secondary changes in the alveoli with chronically inflamed gums over them. I made a clearance of all the teeth (twenty) under regional anaesthesia (superior maxillary and mandibular) with novocain E. The after effects of the injections were remarkably mild—only a slight soreness at their seats. The eruption began to disappear almost immediately. Within a week there was marked improvement, and in a fortnight the patient was able to discard the dressings of his head, hands, and feet, and walk down to my surgery for his temporary denture. After another fortnight he was quite cured and strong enough to attend to his ordinary duties, the only trace left being a roughness of the skin.

This case was treated in June, 1923, and I deferred reporting the results to give time for observation. Since then he has had a few short and mild attacks, which are directly attributable to his own indiscretions. These later attacks support the suggestion of a diathesis, but the immediate recovery following the extraction of the teeth shows that dental disease can be a serious contributory factor to be reckoned with.

# British Medical Association.

## *PROCEEDINGS OF SECTIONS AT THE ANNUAL MEETING, NOTTINGHAM, 1926.*

## SECTION OF PATHOLOGY AND BACTERIOLOGY.

Professor J. Sholto C. Douglas, M.D., President.

## DISCUSSION ON LEUKAEMIA AND ALLIED CONDITIONS.

### OPENING PAPERS.

### I.—G. LOVELL GULLAND, C.M.G., M.D., F.R.C.P.Ed.,

Professor of Medicine and Clinical Medicine in the University of Edinburgh; Senior Physician to the Royal Infirmary, Edinburgh.

At first sight it might seem impossible to say anything new about leukaemia, but the views of the profession evidently want clarifying as to the nature of the disease. The current textbooks of medicine and pathology are by no means dogmatic and some of them even evade any definite statement as to cause and nature. The original picturesque idea that it is a suppuration of the blood has, of course, long ago disappeared, as well as that of a mixed leucocytosis. More recently came attempts to find parasites in the leucocytes, which also came to nothing, and for a long time back the view that the disease is neoplastic has steadily gained ground, though some workers adhere to the notion that it is caused by organisms. The acute leukaemias certainly often enough resemble clinically an acute infection, and if fowl leukaemia is really the same disease the fact that it can be transmitted from one bird to another by the filtered cell-free juice of leukaemic organs is a strong point. But I do not think that we should be led away by a single fact, which after all may be capable of some other explanation, to neglect the great body of evidence which certainly points away from causa-

the colour index, which is always below unity at first, ultimately becomes high, megaloblasts appear in the blood, and as far as the red side is concerned, the picture of pernicious anaemia is produced with more or less fidelity. The same thing may occur in the terminal stages of the chronic forms, though not so constantly, and it is apparently more common in chronic leukaemias in children, in whom the regression to the megaloblastic type of blood formation is always easy. In all the forms haemorrhage, when it occurs, increases the anaemia much more than it would in a normal person, and is always badly borne because the power of regeneration is already strained to its utmost and there is no reserve.

The ordinary variations in the white count in leukaemia are easy to understand. The 500,000 of the chronic granular, 100,000 to 200,000 of the chronic non-granular, are due to the complete filling of the marrow, with constant reproduction, and very probably to reinforcement from the cells lodged in the liver and spleen, and perhaps those in the blood itself. The acute cases never show such high counts—the more acute the case the lower the count. Probably this is because the newly formed cells in the first instance remain in the marrow and gradually fill up all the space, and it is only when that process is completed that the excess appears in the blood, though the proportions are altered from the first.

But in the chronic cases of both types, especially the granular, the count may drop to normal, or near it, either as the result of such an intercurrent affection as influenza or without any apparent cause. One can understand this in the case of influenza or chronic tuberculosis, which are both diseases of negative chemiotaxis, but the causeless remissions are so far unexplained. They may be related to the occasional remissions that one sees in the growth of true tumours.

There are other problems, such as the fever which always occurs in the acute cases, and often in the chronic, with which time will not let me deal, but which will, I hope, be discussed by others.

The subject of our debate is to be "leukaemia and allied conditions." As I see it, there are no conditions which are allied to leukaemia in the strict sense; myeloma is the nearest relation, and from the clinician's point of view it does not give rise to difficulty in diagnosis, as the blood is not leukaemic. Chloroma is a true leukaemia, and presents no difficulty in diagnosis, provided that the blood is examined, and that there are tumours visible or palpable, especially if the green colour can be distinguished through the skin. It is perhaps worth noting that I have seen two cases of hypernephroma with orbital metastases producing proptosis which suggested chloroma. In these cases, however, there was a leucocytosis, and not a leukaemia. A year ago I published a paper in the JOURNAL of this Association on "Difficulties in the diagnosis of leukaemia," and I do not propose to go into that subject fully now.

The only general diseases which are likely to give rise to real difficulty in diagnosis are whooping-cough and glandular fever. The former may show a high leucocyte count with a high percentage of lymphocytes, and I have seen reports of cases in which what was obviously whooping-cough with a catarrhal pneumonia was described as acute lymphatic leukaemia. I am not aware that any proper study of the bone marrow in fatal cases of whooping-cough has been made. Glandular fever, when it occurs sporadically, may give rise to real difficulty; when it occurs as a school epidemic it is not likely to give trouble. There is apparently one form in which the leucocyte increase is polymorphonuclear neutrophil; I have seen only one case of this. In the majority there is a true lymphocytosis, sometimes with high count and high lymphocyte percentage, and the enlargement of glands and of spleen, with the fever, make it possible to imagine a leukaemia. But in acute leukaemias the glands do not enlarge so rapidly, there is more rapid and severe anaemia; and, further, I have never seen a myeloblast in the blood of any of these cases. They sometimes give rise to anxiety later, for the blood change may take weeks or months to disappear, but it will always return to normal in the long run. The patients may be very ill, but I have never seen or heard of a death, so that the marrow has probably never been investigated.

The splenic anaemia of infants is a condition which is now so well recognized that it is not likely to be confused with the true leukaemias, though I have seen cases in which the diagnosis was for some time in doubt. Indeed, the blood in children, because of its high lymphocyte percentage and its tendency to revert to megaloblastic formation in any severe anaemia, is constantly giving rise to difficulty.

But I find that my own greatest difficulty with aberrant leukaemias is their aleukaemic stage, of the type which has been described as leukanaemia. It happens that I have two cases of the kind under observation at the moment, and I may describe them briefly.

The first was a man who had been getting pale and out of health for a couple of years, but had never gone to a doctor. The spleen came 1½ in. below the umbilicus and 1 in. to the right of the middle line, the liver 1½ in. below the rib margin. The blood count was: red cells 1,780,000 per c.mm., haemoglobin 43 per cent., colour index 1.2, white cells 1,200 per c.mm.; a fair number of megaloblasts, and no abnormal cells among the leucocytes. This was, of course, a typical picture of pernicious anaemia, with an unusually large spleen, and probably liver also. A second count a month later was: red cells 2,610,000, haemoglobin 50 per cent., colour index just below 1, white cells 2,800, very few megaloblasts, no abnormal leucocytes. The spleen was a little smaller, especially in the transverse direction. Two months later the liver extended to the umbilicus, the spleen 2 in. below it; red cells 1,950,000, haemoglobin 35 per cent., colour index just below 1, more megaloblasts; white cells 4,000—of these at least half were abnormal cells, the majority myelocytes, the remainder myeloblasts.

The second case came to me with a history from a very competent observer. He also had been pale and out of health for some years, but had only recently come under observation. The spleen came to the umbilicus, the liver was 1½ in. down. Some time before I saw him the count was: red cells 4,000,000 per c.mm., haemoglobin 70 per cent., white cells 13,500, of which about 25 per cent. were myelocytes and myeloblasts, fairly numerous nucleated red cells. My own count was: red cells 3,170,000, haemoglobin 68 per cent., colour index just over 1, white cells 4,900, fairly numerous megaloblasts, no definite myelocytes, but some myeloblasts. I made the note that I had never seen a pernicious anaemia, which the blood indicated pretty definitely, with so large a spleen, with a blood at that stage, or with so many myeloblasts. Later, the white cells rose again for a short time to 13,000, then fell to 5,000, and the myelocytes reappeared; the red count remained at the same figure as my own. My count two months after the first one was: red cells 3,043,000, haemoglobin 48 per cent., colour index 0.8, white cells 5,000; only 1 nucleated red, a normoblast, was seen; about 20 per cent. of the leucocytes were abnormal, about equally myelocytes and myeloblasts; the liver and spleen were both distinctly larger than before, although the patient's general condition had improved.

Now are these cases, and such as these, aberrant pernicious anaemias or aberrant leukaemias? I am inclined to think that both, especially the latter, are leukaemias. Time will very likely clear up the difficulty. It is always easy for the pathologist to say, "*Respice finem*," but the unfortunate clinician has to make up his mind as to diagnosis and treatment on the evidence he can get at the time. We look for your sympathy, and in all our difficulties we do our best to avoid giving you an opportunity for making a final diagnosis.

REFERENCE.

[1] Gulland and Goodall: *The Blood*, third edition, p. 218.

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## II.—S. W. PATTERSON, M.D., D.Sc., M.R.C.P.,

Physician, Ruthin Castle, North Wales.

THE present communication consists of an analysis of a series of cases of diseases of the blood-forming organs. Most of the material was obtained in the pathological department of the Melbourne Hospital; some privately observed cases have been added.

### CLASSIFICATION.

Until more is known of the etiology of diseases of the blood-forming organs, no satisfactory classification from the point of view of causation can be offered. A pathological classification may be made according to the type of normal or abnormal cells predominating in the lesion.

observation, shows such a high leucocyte count that the disease must certainly have been present for a long time. During this latent period there seems to be less disturbance of general health even than in the chronic granular cases, and until the final breakdown occurs there is less anaemia and less tendency to the recurrent haemorrhages which may be so marked a feature of the chronic granular form. I am satisfied that many of the cases which are described as acute lymphatic leukaemias with high white counts are really the terminal stages of the chronic form. The striking feature of the blood in the chronic cases is the high proportion of lymphocytes, usually small, and sometimes reaching the high figure of 95 per cent. or even higher. Another feature is the fact that a large number of the cells are obviously dead or degenerated, and consist only of smeared nuclei in films—the thinner the films the more smeared nuclei. This degeneration of cells is far more common in all the non-granular forms, acute and chronic, than in the granular varieties, in which it is not nearly so obvious.

I am becoming somewhat sceptical of the existence of a really acute lymphocytic form. Most of the descriptions date back to a time before the myeloblast was recognized as a separate entity, and are based on staining which did not bring out the difference between lymphocyte and myeloblast, and I personally have not seen any case of late years which I could confidently call acute lymphatic, as distinguished from myeloblastic, leukaemia. As I have already said, many of the cases so described are really the terminal stage of the chronic lymphatic form. Probably most, if not all, as I am inclined to think, of the acute non-granular cases are really myeloblastic. But it is to be remembered that in many of the myeloblastic cases there is a lymphocyte overgrowth also. This is always most evident early in the case; the total white count may not be greatly raised, but there is a high proportion of non-granular cells—85 or 90 per cent.—of which 25 to 50 per cent. may be myeloblasts, the rest lymphocytes. As the case advances the proportion of myeloblasts steadily increases, until at last, if the case lasts long enough, practically all the cells are myeloblasts. Of course, a large haemorrhage or other accident may prevent the completion of the picture. This seems capable of two explanations—either that at first the myeloblasts continue to be capable of developing into lymphocytes, and later cease to be capable of doing so, or that the primary lymphocyte increase is reactive in the same way as that in the chronic granular type. I am not prepared to say that this happens in every case of myeloblastaemia. Certainly in many of them the myeloblast picture is fully developed from the first, but of course the first blood examination is not always made at the beginning of the disease.

I need say nothing about the "mixed" forms, for it will be evident from the foregoing that almost every case is "mixed" at some stage. Even in the chronic non-granular cases, which are more true to type than any of the others, some myelocytes and myeloblasts will appear towards the end of the case, for reasons which will be evident when I come to speak of the red cells.

It is a truism that leukaemic patients do not die because of the leucocyte excess, except in so far as the heaping up of cells in important organs, such as the liver and kidney, interferes with their function, or thrombi of leucocytes predispose to haemorrhage. They die most often of the accompanying anaemia and its results, of haemorrhage, or of intercurrent conditions. How is the anaemia produced? Why is it that the chronic forms will go on for years with only a slight secondary anaemia or none at all, while the acute forms may drop a million every few days and terminate with a count of perhaps a million, a high colour index, and megaloblasts in the circulating blood?

I feel sure that the answer to these questions lies in the rate at which the marrow is filled up by the proliferating leucocytes, so that it ceases to be an erythroblastic tissue to a great extent and becomes wholly or almost wholly a leucoblastic tissue There is no other organ in the body, except perhaps the spleen, which has the same potentialities of expansion as the marrow, and we all know how this power of expansion is utilized in the diseases which produce leucocytosis and in the primary and secondary anaemias. In the majority of leukaemias the primary change is in the marrow. We do not know, and possibly we shall never know, whether the change begins locally or generally; nor does it greatly matter, for the mobile altered leucocytes, when they pass into the blood stream, must be carried to all parts of the marrow as they are to all other organs, and start proliferation in fresh places. There must of course also, in addition to this, be the steady overgrowth and filling up of the fatty marrow in the long bones from the active foci at their ends. If this filling up of the whole available marrow space proceeds slowly, there is time for the erythroblasts which are crowded out of their normal habitat to spread themselves also into the newly activated parts of the marrow and to keep up the supply of red corpuscles to the blood. They probably do this at some disadvantage, for even in the earliest chronic leukaemias the colour index is usually lowered though the red count may be normal or nearly normal, but the process is a slow one, and patients adapt themselves to a lowered haemoglobin percentage in an astonishing way, not only in this, but in all chronic anaemias. In the chronic granular type normoblasts escape or are extruded in large numbers into the blood; and there is evidence that they proliferate there, and even also in the liver and spleen to which they are carried, thus recalling the blood formation of foetal life to a certain extent.

In the non-granular chronic cases normoblasts do not escape into the blood in the same way. In a myelocythaemia it is often difficult to find a single field without one or more normoblasts; in a chronic lymphocythaemia it is often difficult to find any. The reason for this is probably complex. We must remember that lymphocytes are not true marrow cells in the same sense that myelocytes are. They occur everywhere in connective tissue throughout the body—massed in lymph glands and adenoid tissue, scattered in ordinary fibrous tissues, and are found in the marrow quite as much because it is a connective tissue as because it is a blood-forming organ. I am inclined to think also that very many at least of the lymphocytes in the marrow lie in connective tissue spaces rather than in blood spaces, so that their relation to the erythroblasts is not as close as that of the granular cells. There is no reason to suppose that the leukaemic process may not start in any part of the lymphatic apparatus. If it begins in lymph glands or in the adenoid tissue of the hollow viscera which drains into lymph glands, it may remain localized for a long period, and there may be no influx of lymphocytes into the blood. Sooner or later the process will spread to the marrow, but even when it reaches it the reproduction of lymphocytes is slower than that of myelocytes, and possibly it occurs more in the connective tissue spaces. The result will be that there is more time for erythroblastic proliferation, so that the erythrocyte equilibrium is more easily maintained. With both the chronic types a point is reached at last when red corpuscle formation is seriously interfered with, a rapidly advancing anaemia occurs, and leads to death by haemorrhage or in other ways, just as in the acute forms. In the chronic forms one can sometimes restore the balance again by destroying the leucocytes by radiation or in other ways, and so give the erythroblasts a fresh chance, and the patient a fresh start. In the acute forms we have not yet succeeded in doing this.

In discussing the anaemia of the acute forms we need only consider the myeloblastic variety—the myelocytic or promyelocytic form acts in exactly the same way. Myeloblasts occur only in the bone marrow; when they are attacked by the leukaemic process they evidently proliferate with tremendous rapidity, and rapidly fill up the marrow spaces, leaving no room for not only the erythroblasts but even the myelocytes. I have sometimes found the marrow in these cases, in places at any rate, pure white to the naked eye, and have found practically nothing but myeloblasts in films from these bits of tissue. As a result normoblasts are found in the blood early, though never to the same extent as in some of the chronic granular cases, because regeneration is so profoundly interfered with in the marrow. Often, indeed, this interference is carried so far that the normoblastic function passes more or less into abeyance and the megaloblasts are called upon, so that

of the bone marrow with a crisis of production and dissemination in the blood of immature myeloid leucocytes—myeloblasts or mother cells.

(*b*) *Chronic Enlargement of the Spleen without Leukaemia.*—This includes a number of diseases of the blood-forming organs, which are referred to above—splenic anaemia, Banti's disease, Gaucher's disease, acholuric jaundice of hereditary or sporadic occurrence, pernicious anaemia. Their discussion does not come within the scope of the present paper.

### 3. *Mediastinal Tumour.*

Excluding instances of aneurysm, hydatid, carcinoma of the bronchus, and secondary growths in the lungs from tumours elsewhere, there were 20 cases of mediastinal tumour, which fall into the following groups.

(*a*) *Hodgkin's Disease.*—In 9 cases of Hodgkin's disease involvement of the mediastinal glands caused symptoms of pressure in the chest. Even in the mild cases the glands may be enlarged to such an extent that an irritable cough occurs from pressure on trachea and bronchi. Hydrothorax on one or both sides is a frequent accompaniment, and calls for paracentesis. *X*-ray treatment may reduce the swelling of the glands, and the symptoms may abate temporarily.

(*b*) *Lymphosarcoma.*—Six fatal cases showed the histological picture of so-called lymphosarcoma. The course was rapid and fatal. The whole anterior mediastinum becomes more or less filled with a large firm fleshy mass, which surrounds the large vessels, and infiltrates the pericardium and pleura, and may compress and invade the lung. The lymphoid cells may pass beyond the lymph gland capsule, overflowing into the fibrous tissue, and may be found in sections passing between the muscle fibres of the myocardium. The blood often contains an increased number of white corpuscles, usually of the polymorphonuclear type. In some instances, besides the local collection of lymphoid deposit in the mediastinum or the retroperitoneal space, there is a flooding of the circulatory blood with embryonic white corpuscles. This is the condition described as leucosarcoma—that is, lymphadenoma associated with leukaemia. There is no real line of cleavage possible between these two conditions. Only one patient in this series of cases showed this condition.

(*c*) *Fibrosarcoma.*—In four other cases of mediastinal tumour the type cell was fibroblastic, and the cases showed variations from a round-celled, through a spindle-celled, to a fibrosarcoma. The origin of the tumour was in three cases from the periosteum of the sternum, in one it appeared to arise in the fibrous tissue of the mediastinum. Its origin is not from blood-forming tissue, but from the fibrous tissue of supporting structures.

Reviewing this series of cases, we see that in the chronic cases improvement, often for a considerable time, may follow treatment with arsenic, benzol, tartar emetic, and *x* rays. In the acute cases, and in the long run in the chronic cases, death is due to the disease itself; and as the cause of leukaemia and allied conditions is unknown, specific treatment is not possible.

## GENERAL DISCUSSION.

Professor Sholto Douglas (Sheffield) inquired whether Professor Gulland had found that cases of leukaemia could occur in almost epidemic form. Early experience as a medical student gave the impression that leukaemia was a rare condition in which the myelogenous type prevailed. This impression received some support from Osler, who, writing in 1901, had seen but 24 cases in his hospital practice, of which only 9 were of the lymphatic type. During the last eighteen months in Sheffield 13 cases (12 male and 1 female) of the lymphatic type had been under observation, and 9 cases (5 male and 4 female) of myelogenous type—large numbers for so short a period. In this series the ages of the patients ranged from 2 to 63 years, with half the cases under 20 years, in the lymphatic form, and from 18 to 62 years in the myelogenous type. Professor Douglas also asked to what extent the oxidase reaction could be relied on in differentiating the granular and non-granular cell types, as in his own experience this reaction did not effect all that had been hoped of it.

Dr. R. Donaldson (London) called attention to the fact that while the textbooks on medicine varied somewhat as regards their treatment of the subject of leukaemia they all made the mistake of giving too rigid a classification. It was only in actual practice that it was realized how utterly inadequate the usual classification was, and how difficult, almost impossible, it was sometimes to name with any degree of precision the type of leukaemia met with in many cases. He disagreed with the view that leukaemia was a sarcomatosis, since, if it were a sarcomatosis of the blood-forming tissue, it behaved differently from all other sarcomas. Either there was a primary sarcomatous focus with multiple secondary metatases or there was a universal and simultaneous sarcomatosis of the blood-forming tissue. On the other hand, primary sarcoma of the spleen was rare, while primary tumours of the haemopoietic tissue, unassociated with a leukaemic condition of the blood, were still more rare. An example of this was multiple myelomatosis of bones—a condition which seemed to differ essentially from leukaemia. Dr. Donaldson added that cases of chronic myelogenous leukaemia might last ten or more years—a thing practically unheard of in true sarcoma. On the other hand, leukaemia might run a fatal course in a very few weeks. Dr. Donaldson considered that there was more to be said for a possible virus or irritant, using the latter term in its broad sense. There was, for example, the known fact that fowl leukaemia might be transmitted by means of cell-free filtrates. On the clinical side, also, there were signs suggestive of an infective condition. For instance, there was the irregular fever, and the occurrence of night-sweats so frequently found in leukaemias—a point not referred to by the previous speakers, except in connexion with Hodgkin's disease. If any further progress was to be made in elucidating the cause or causes of leukaemia investigation must be directed, not so much to a study of the various types of cells met with in the bone marrow and in the blood in cases of leukaemia, but to the discovery of the mechanism which regulated the production of the leucocytes in general. He drew attention again to the well known variations in the numbers of leucocytes in normal blood—for example, as a result of exercise, food, and metabolism—and to the increase that occurred in the blood in acute infections leading to the production of a leucocytosis. How exactly was this leucocytosis brought about? Might it not be that in leukaemia the primary change was one affecting the regulating mechanism, and that the varied and varying blood picture was merely the visible expression of this interference? The identification of this regulating mechanism might be the key to the solution of the problem. The mere typing of the blood cells seemed to him at the present juncture quite an unprofitable line of study and one which had hitherto led to nothing but confusion.

Dr. Donaldson agreed with Professor Gulland that chloroma should be considered as leukaemia, but a special variety of that disease. It differed from the usual types in giving rise to tumours in various connective tissue structures, and it differed also in respect of the excessive amount of oxydase present in the cells. Dr. Donaldson pointed out that this latter could very easily be demonstrated by placing small pieces of tissue taken from any of the organs *post mortem*, not merely from the tumour masses, into a solution containing 100 c.cm. of 95 per cent. alcohol, 0.5 gram of benzidine, and 0.2 c.cm. of hydrogen peroxide. Chloromatous tissue immersed in this fluid became instantaneously a deep blue colour—a reaction given by myelogenous leukaemias more slowly and not so intensely, but entirely absent in the case of normal tissue or tissue removed from a case of chronic lymphatic leukaemia. Dr. Donaldson had found this a valuable test, especially in cases diagnosed during life on the blood picture as lymphatic leukaemias, but really myeloblastic; for the tissues in the latter, in spite of the similarity of the blood cells to lymphocytes, gave a positive reaction. He considered that the oxydase reaction would ultimately come to be a very valuable means of distinguishing the lymphatic type of leukaemia from the myeloblastic. At present, perhaps, the reaction was not too reliable as there

Such a one, modified from that of Grüner, has been found useful in teaching and is given below.

*Disorders of Reticulo-endothelial System.*

| | | |
|---|---|---|
| 1. Hyperplasia of normal cell elements: | | |
| | (*a*) Lymphocytes. | Lymphatic leukaemia, lymphosarcoma. |
| | (*b*) Early leucocytes. | Spleno-medullary leukaemia. |
| | (*c*) Reticulum. | Hodgkin's disease; Gaucher's disease. |
| | (*d*) Fibrous tissue. | Passive congestion, syphilis, malaria. |
| 2. Alteration of metabolism of normal cells. | | Chloroma. |
| 3. New cells produced. | | Myeloma. |
| 4. Excessive formation of stroma with dystrophy of specific tissue cells: | | |
| | (*a*) Return of foetal blood cells, megaloblasts. | Severe anaemia. |
| | (*b*) Fragility of red blood corpuscles. | Familial haemolytic splenomegaly. |
| | (*c*) Increased destruction of red corpuscles. | Splenic anaemia. |
| | (*d*) Relative leucocytopaenia. | In glandular fever, intravenous injection of foreign protein. |

### Clinical Grouping.

A more useful classification in practice is according to the predominant clinical sign, and I propose to analyse my cases in this way. The method, however, involves a certain amount of repetition. Taking tumour of glands, tumour of spleen, and mediastinal tumour as the most striking features on clinical examination, the cases fall into the following groups.

#### 1.—*Primary Enlargement of Lymph Glands.*

By primary enlargement of lymph glands is meant tumour of lymph glands where known causes, such as syphilis, tubercle, or glandular enlargement secondary to neoplasm or pyogenic infection, are excluded.

(*a*) *Acute Primary Glandular Enlargement with Leukaemia (Acute Leukaemia).*—There were 12 cases in this group—1 female and 11 males. All ages were affected, and there were five patients over 55 years of age; the younger cases, however, showed a more rapid evolution. The symptoms were severe, with fever, loss of weight, and haemorrhages from mucous membranes and into the skin; enlargement of the lymph glands throughout the body and enlargement of the spleen occurred in most cases. The white corpuscles were always increased, often to a great extent, counts of many thousands to three-quarters of a million per cubic millimetre being met with. There was progressive secondary anaemia. The course was rapidly downhill, and invariably a fatal termination took place in a few weeks. The white cells found may be either lymphocytes or of myeloid origin (myeloblasts). From the clinical standpoint the differentiation is not of much importance, as these cases are fatal whatever the treatment.

(*b*) *Acute Primary Glandular Enlargement without Leukaemia (Glandular Fever).*—This occurs mostly in young people, the symptoms being malaise, fever, and a general enlargement of lymph glands in the neck, axillae, and groins. There is often sore throat, with a pseudo-diphtheritic membrane, and Vincent's bacilli and spirilla are found. The white blood cells are usually increased, and there is a relative lymphocytosis. The cells are normal in character; the symptoms are not severe, death being rare; there are no haemorrhages, and the prostration and anaemia of acute leukaemia do not occur. But the diagnosis from an early acute leukaemia may be difficult and give rise to great anxiety at the beginning.

(*c*) *General Glandular Enlargement without Leukaemia (Hodgkin's Disease).*—This group of 31 cases in my series showed a characteristic histological picture in the affected glands, which is typical of Hodgkin's disease. Males were affected more than twice as frequently as females. The age at onset varied from 11 to 69 years; in 10 the disease began before the age of 30, and in 4 after the age of 50; 17 first showed symptoms between the ages of 30 and 50, and of these 9 (30 per cent.) were between 30 and 40. The course of the disease was progressive in half the cases (16), relapsing in 7, and acute in 1, while 7 were diagnosed in the early stages on histological evidence. In 13 cases known to have died the duration of the disease was four months to four years, with an average of two years. The symptoms were malaise and weakness, loss of weight, often night sweats; no haemorrhages occurred; cough was frequently noted, and hydrothorax supervened in 4 cases. The glands first affected were the cervical group of one or other side in 19 (60 per cent.). Later, the glands of the other side of the neck enlarged, then the axillary and inguinal groups. The mediastinal glands were affected in 9 (29 per cent.), and the mesenteric glands enlarged in 3 (10 per cent.). The liver was noted as increased in size in 3 cases. The spleen was greatly enlarged in 4, and palpable in 6 others. The blood usually showed a secondary type of anaemia; the red cell count may be as low as 1,500,000 per c.mm., with a corresponding reduction of the percentage of haemoglobin. The white cell count varied from 2,000 to 28,000 per c.mm., with an average of 10,000. Eosinophilia was noted in several cases. Abnormal types of cells are not present in the blood. The glands are usually painlessly enlarged, discrete, and not attached to the skin or fascia, and they may attain a large size. Microscopic examination of an excised gland gives a typical picture of hyperplasia of the reticulo-endothelial cells, agglomerations of multinucleated giant cells, and as well in the early stages, an increased number of eosinophilic cells. In the later stages degeneration of the cells takes place, and there may be increase of fibrous tissue and scarring. There has been much discussion as to the relation of Hodgkin's disease to tubercle in a more or less modified form, but generally it is allowed that the frequent association here, in Europe, and in America, is due to secondary accidental infection. Certainly it is rare in Australia, where tubercle is less common, to find the two conditions together. The course of Hodgkin's disease seems to be more or less rapidly fatal. Healing has been reported as the result of various procedures, but the experience of these hospital cases is depressing. Retrogression seems to be obtained by arsenic internally or treatment with *x* rays and radium, but relapse occurs, and the patient tends to go downhill more or less quickly.

#### 2. *Chronic Enlargement of the Spleen.*

Chronic tumour of the spleen may be associated with malaria or hepatic portal cirrhosis, or may be caused by hydatid cyst in Australia. Enlarged spleen frequently accompanies Hodgkin's disease (one-third of the cases in the series quoted); the enlarged lymph glands associated with splenic tumour would assist the diagnosis, and microscopic section of one of the glands would clinch it. In the cases we are studying at present tumour of the spleen may be grouped according to the presence or absence of leukaemia.

(*a*) *Chronic Enlargement of the Spleen with Leukaemia (Splenomedullary Leukaemia).*—There were 16 cases in this group—12 males and 4 females. The age at onset varied from 22 to 70, four patients being 60 years of age or older, while four were in the third decade of life. The duration of the illness varied from nine months to as many years; the rapidity of course and fatal ending seemed to be less a result of increase in white corpuscles than of diminution of red corpuscles, with consequent anaemia. The onset of the disease is usually gradual, and the patient's attention is first attracted to it by feeling a lump or pain in the side of the abdomen, due to enlargement of the spleen or perisplenitis, or by the symptoms of increasing anaemia, malaise, weakness, pallor, and loss of weight. Haemorrhages occur in the later stages of most cases. The blood picture is that of a secondary anaemia with great increase of the myeloid white cells; early forms not usually seen in the peripheral circulation predominate, pre-myelocytes, myeloblasts, and myelocytes. One of the difficulties in treatment of this condition seems to be that remedies directed to reducing the number of leucocytes (usually by inhibiting production at their source in the bone marrow, by benzol, *x* rays, or arsenic) at the same time lessen or destroy the red corpuscles which the bone marrow is producing. Antimony, arsenic, benzol, and applications of *x* rays to bone marrow and spleen all seem of at least temporary benefit, in some cases arresting the progress of the disease and allowing a return to normal health for months or years. Death occurs from progressive anaemia in the chronic cases; in others, there may be terminal irritability

The reactions of the cells to their environment might be tabulated thus:

1. Multiplication + differentiation + co-ordination + inhibition = animal.
2. Migration + inhibition = healing by first intention.
3. Migration + multiplication + inhibition = healing by second intention.
4. Multiplication + differentiation + inhibition = innocent tumour.
5. Multiplication + differentiation − co-ordination − inhibition = cancer.

It was extremely desirable to obtain further data concerning the inhibition of growth.

In the afternoon a practical demonstration was given of the main points in the lecture.

# Memoranda:

## MEDICAL, SURGICAL, OBSTETRICAL.

### THREE "FOREIGN" USES OF OESOPHAGEAL CATHETERS.

SOMETIMES small points, not mentioned in textbooks, but nevertheless of real value, are worthy of being put on record.

The first use of an oesophageal catheter is to intubate the oesophagus. It is "foreign" to use it otherwise, but here are three uses to which I have put it, and doubtless others have done the same; they may, however, be novel to some.

1. In those distressing cases of an "artificial anus" in the caecal region in which it is highly desirable to short-circuit by an ileo-colostomy, it is occasionally difficult, even when the incision has been made, to be sure of the portion of the ileum which is passing to the caecostomy. If previous to or after the incision an assistant introduces an oesophageal catheter into the artificial anus, it will slip with a little manipulation into the ileal loop, and can be felt and seen through the left-sided incision, thus clearly indicating the portion of intestine which should be anastomosed with the pelvic colon.

2. After the short-circuit has been made it is well to pass an oesophageal catheter through the natural anus, and up through the anastomotic opening into the ileum. This will enable at least flatus to be easily passed during the first twenty-four hours after the operation, and may save the patient a considerable amount of discomfort.

3. When the abdomen has been opened and a volvulus of the pelvic colon has been untwisted, the passage of two oesophageal catheters through the natural anus and up into that portion of the pelvic colon which has been the site of the twist and dilatation will drain the loop, and allow fluids to be injected through one catheter and to escape through the other. In this way I am sure that a recurrence of the volvulus soon after the untwisting is almost certain to be prevented. It is important that the catheters in this instance should be sutured to the anal margin so that they do not slip out before they have completed their work.

W. MCADAM ECCLES, M.S., F.R.C.S.,
Surgeon, St. Bartholomew's Hospital.

### CARDIAC MASSAGE FOR POST-OPERATIVE COLLAPSE.

THE following case appears to be worthy of record in view of the temporary recovery of the action of the heart which followed the use of cardiac massage.

A plating operation was performed on a man, aged 26, who had a compound comminuted fracture of the tibia. There had been considerable haemorrhage, but no cause of anxiety appeared until the end of the operation, when the patient collapsed. Tilting of the table improved his colour, but his breathing stopped almost immediately. Artificial respiration, the use of oxygen, and the injection of pituitrin were without effect. I then opened the epigastrium and massaged the heart with one hand under the diaphragm and the other pressing on the chest wall. After about two minutes the heart began to beat and the amount of air entering the lungs distinctly increased. The patient's colour became a healthy pink, but the pupils remained widely dilated, and there was no voluntary respiration. After thirty-five minutes the heart stopped, and further massage failed to restart it. With one hand in the abdomen as a guide, I injected 10 drops of a 1 in 1,000 solution of adrenaline into the heart, using an ordinary hypodermic needle, well pressed home, and inserted close to the sternum in the fourth intercostal space. A few seconds later the heart began to beat again, and continued for half an hour. The patient was given an injection of camphor dissolved in oil, and also ammonia to inhale, but neither seemed to have any effect on the respiratory centre.

The patient died, I presume, of cerebral anaemia, his brain being too toxic or disorganized to respond when circulation of good blood was re-established. The question arises whether he would have lived if I had not lost time in performing artificial respiration, yet if it was customary to practise cardiac massage in every case of collapse on the operating table there would be quite a number of people with a scar in the epigastrium. I should be glad to receive suggestions or criticism.

Wallasey. W. STANSFIELD, M.R.C.S., L.R.C.P.Lond.

### RETROBULBAR NEURITIS (TOXIC).

THE following case of a severe type of retrobulbar neuritis in a moderate smoker presents points of interest.

X.Y., aged 51, in the "trade," complained that his eyesight had been failing for two years. He had been a soldier in India for several years, and was invalided out of the army on account of injury to the spine. He was referred to me in March, 1926, by Messrs. Charnley and Sons, opticians, Bedford. His vision then was: right eye, 6/24 with difficulty; and left eye, less than 6/60. In each eye there was a large central scotoma for red, blue, and green, with contracted fields for white.

In the centre of each disc, more marked in the left eye, was a small pale area, in which the lamina cribrosa was evident. The fundus was otherwise normal, as were the remaining structures of the eyes. There was no evidence of peri-orbital sinus infection. The teeth were good. It was suggested that the Wassermann reaction should be tested, but this was declined. The patient was a beer drinker, and a moderate smoker. He never smoked shag or the heavier tobaccos, but only a medium Virginia tobacco.

The diagnosis of retrobulbar neuritis of toxic origin was made. As he thought he would become blind in any case he was with difficulty persuaded to be a total abstainer and non-smoker for twelve months. He was referred to his own doctor for the usual treatment of tobacco amblyopia, with strychnine, suitable diet, purgation, etc.

Four months later, Dr. F. Bolster, C.M.G., kindly sent the patient to me for further examination. I found that vision was now normal in the right eye—6/6 without correction, and colour vision was normal. In the left eye vision was 6/24 without correction; vision for red and blue had returned and there was a small central scotoma for green remaining. There was an old-standing external strabismus in the left eye.

In March he wore *plus* 7.0 D. sphs. and could only read large print even with these magnifying glasses. In July he could read J.1 with *plus* 2.0 D. sphs., his normal correction. At neither examination were there any associated signs of chronic disease of the central nervous system.

A diagnosis of progressive optic atrophy should be made with diffidence, even in a moderate smoker of medium Virginia tobacco, until toxic retrobulbar neuritis can be definitely put out of consideration. In this case the diagnosis was rendered more difficult by the fact that the visual acuity differed considerably in the two eyes. It would seem as though the deterioration of vision in the two eyes had proceeded at a uniform rate, as is usual in tobacco amblyopia, the resultant difference in visual acuity being due to the partial amblyopia in the left eye, which was present when the toxin commenced to affect vision.

Bedford. C. G. KAY SHARP, M.D.Leeds.

### HERPES AND VARICELLA.

IN connexion with Dr. W. J. Meldrum's memorandum on herpes and varicella (August 14th, p. 302) the following case would appear to be of some interest:

On June 15th, a boy, aged 9 years, developed unilateral intercostal herpes, which gradually subsided. On July 2nd the remaining five children in the family, including a girl aged 12, showed definite chicken-pox, whilst the lad who suffered with herpes was unaffected.

It will be noticed that the time between the herpes and chicken-pox is seventeen days. This seems too remarkable to be a mere coincidence.

HAROLD PEREIRA, M.R.C.S.Eng.,
London, N.10. L.R.C.P.Lond.

were many points to be cleared up in relation to it—as, for instance, the type of reagent to be employed. With regard to Professor Douglas's remarks about the possible epidemicity of leukaemia and his suggestion that leukaemia was on the increase, Dr. Donaldson stated that from an analysis of cases of leukaemia admitted to St. George's Hospital during the last ten years there was no indication of any increase in the incidence of the disease. The classification of these cases was faulty owing to the confusion of myeloblastic with lymphatic types, but under the heading of "acute lymphatic leukaemia" there had been 9 cases—8 males and 1 female—the ages ranging from 5 to 54. Under the heading of "chronic lymphatic leukaemia" there were 7 patients, with ages ranging from 9 to 60, most of whom were females. Under the heading of "chronic myelogenous leukaemias" there were 10 patients, with ages ranging from 28 to 59, of whom 4 were females and 6 were males.

Professor LOVELL GULLAND, in replying to the discussion, said he would like in the first place to traverse very decidedly the statement in Dr. Patterson's paper that *x* rays or radium caused anaemia as well as a drop in leucocytes in the chronic leukaemias. They might do so if they were improperly used, especially if the dosage was too large, or application was carried on too long; with the proper use of either he had now many times seen the anaemia improve or disappear without other treatment. Professor Douglas's question as to the value of the oxydase reaction in diagnosis might best be answered by the statement that it was generally useless in those cases in which it was most wanted—in the distinction between the acute myeloblastic and acute lymphocytic types. Some myeloblasts gave the reaction, others did not. He was inclined to think the older myeloblasts showed it, not the younger. He suggested that the acute leukaemias seemed to occur in epidemics. It was certainly true that they often came in runs, but every physician knew that this occurred with all kinds of cases, even with aneurysms and locomotor ataxies. It was certain that many acute leukaemias were not diagnosed. Professor Gulland agreed with Dr. Donaldson in seeing difficulties in accepting absolutely the definition of leukaemia as a sarcomatosis, and had admitted these difficulties in discussing its nature. It was, however, the hypothesis which best explained the facts of the disease. In regard to the causeless remissions in the chronic forms, it must be remembered that these were often evidenced only by the change in the blood; there might be no alteration in the spleen or other organs. They were sometimes merely a cessation of overflow into the blood, without real alteration in the marrow. It was possible to produce a blood remission with benzol, for instance, and when the drug was stopped the leucocytes resumed their former figure in a day or two.

## THE LIVING TISSUE CELL.

BY

T. S. P. STRANGEWAYS, M.A., M.R.C.S., L.R.C.P.,
Lecturer, Special Pathology, Cambridge University.

DR. STRANGEWAYS said that as a profession they were too apt to regard the human body as a mass of tissue essentially liable to disease and endowed with a consciousness liable to neuroses. It was sometimes wholesome to make an excursion into biological fundamentals, and to reflect for a moment upon what and why the body really is.

The cells of tissues cultivated *in vitro* by the usual method in plasma and embryo extract wandered out from the main fragment and formed a thin film of growing and dividing cells upon the surface of the coverslip. This thin film was very suitable for dark-ground illumination. The cells had amoeboid movement, and showed vividly the mitochondria, nucleus, nucleolus, metabolic granules, and fat. No cell wall, nuclear membrane, or Golgi apparatus could be seen, and in the mitotic cells no evidence of spindle fibres. On the warm stage all the structures in the cell and the cell itself were to be seen in more or less active movement. Anyone watching such a cell would be struck by its individuality and independent behaviour, and would realize, as perhaps never before, that the cell, properly speaking, was an organism complete in itself.

Cell seen under dark-ground illumination.

Man, like all other metazoa, consisted of a colony of organisms—the cells. To create a man or any other animal the fertilized ovum produced two lines of descendants—the somatic cells and the germ cells. The sole function of the former was to carry, nourish, protect, and propagate the latter, which constituted the essential part of the organism. In the creation of the somatic colony the fertilized ovum had evinced a far-reaching intelligence inconceivable to our cerebral soma. Researches on tissue culture had shown that all cells were potentially immortal, since tissue under cultivation could be maintained in a state of active growth and multiplication for an indefinite period. In the body, however, the immortality of the somatic cells was sacrificed for the benefit of the germ cells.

The life of the cell was to a great extent independent of the life of the animal, and the death of the body in no way necessitated the immediate death of its component cells. As an illustration Dr. Strangeways mentioned that recently a colleague happened to need some kidney tissue for cultivation. Previously he had killed a rabbit for experimental purposes and thrown away the body in the dustbin, where, owing to the slackness of the dustman, it laid for two days in hot weather. At the end of that period he exhumed it, dissected out one kidney, which he washed in a solution of iodine; he then removed fragments for cultivation, and the cultures grew perfectly.

The method of tissue culture also showed that the somatic cells did not require the control of the organism as a whole in order to build up the various specific tissues for which they were set apart in early embryonic life. For example, the isolated eye and limb-bud of an early embryonic chick would continue to grow and differentiate in a surprisingly normal manner when cultivated in a test-tube, although it would be considerably smaller than if allowed to develop under the care of the hen.

Migration and division represented the response of the cell to changes in environment. The cell showed three conditions:

1. Vegetative state ... Environment stable.
2. Amoeboid state ... Environment somewhat changed.
3. Mitotic state ... Environment markedly changed.

In all these three conditions the environment must be favourable, or otherwise the cell would show injury, disease, or death.

Vegetative cells might remain quiescent throughout adult life, yet at any moment they might be induced to migrate and multiply. The profession was very familiar with instances of such response.

clinical interest, but also throw light upon the physiology of the nervous system. In this book, assisted by a number of good clinical and pathological illustrations, Dr. Sachs has successfully presented a large and complicated subject in a very interesting way. On the subject of nervous disorders in childhood and adolescence, he speaks with the authority of long clinical experience, and with a wide knowledge of the literature; indeed, an appendix to each chapter gives a full bibliography of the subjects dealt with. In an interesting and valuable chapter he traces the development of the normal mind in infancy, childhood, and youth, and takes the opportunity of expressing forcibly his opposition to the Freudian doctrines of child psychology and especially to their application in psycho-analysis. The book is an authoritative, a fairly full, and an interesting exposition of a large and important subject.

Sex diseases in children,[4] by Dr. FISCHER-DEFOY of Frankfort, and Drs. KRAMER and LANGER of Berlin, is a small volume of a hundred pages dealing with congenital syphilis and gonorrhoea in children. It gives a brief account of their clinical manifestations, and deals also and more fully with their train of consequences for the individual and their wider family and social effects. It is written partly for medical men, but more especially for the instruction of parents, social workers, and teachers, in the hope that with wider knowledge its curative and preventive treatment may become more effective.

## REASONED HISTOLOGICAL TECHNIQUE.

OF the two types of book dealing with histological technique, one consists mainly of rule-of-thumb prescriptions which will enable the student to prepare a presentable slide and pass his practical examination without discredit; the other explains the scientific principles of the subject and builds thereon a superstructure of directions which will enable him to become efficient in what is essentially an art, and equip him for its subsequent application in scientific research. Of the latter type CARLETON'S *Histological Technique*[5] is a good example. The general plan of the book does not differ from that usually adopted in such works. There is a chapter on type-methods of normal histology, including fixation, embedding, section-cutting, and staining. This is followed by a chapter on accessory methods—dark-ground illumination, histo-chemical tests, injection methods, and intravital staining. Then the various tissues and organs of the body are taken in order and the most suitable methods of preparation in each case described; and finally a chapter is devoted to the technique of morbid histology, including methods for the identification of micro-organisms and other parasites.

The book, however, embraces a wider view of the subject than is usually adopted in treatises on histological technique. Thus the author has thought well to make a departure from current practice by inserting chapters on the cell in relation to histological technique, emphasizing the conception of cells and tissues as complex colloidal entities which are only too readily altered by the treatment to which they are subjected. Further, an interesting chapter, contributed by Mr. F. HAYNES, has been added, giving an elementary account of the theory of staining—a complex subject, reference to which is usually omitted in works on histology, but which lies at the very foundation of an adequate knowledge of the technique. While taking a broad view of the subject, the author has not overlooked the importance of attention to minute details. A successful histological technique depends largely on a knowledge of various small "tips," and many of these useful details have been added as notes appended to the descriptions of the various methods. Again, the success attendant on technical manipulations is to a considerable extent proportionate to the worker's knowledge of small hidden difficulties, and it has been the author's aim to point out these and indicate the means of avoiding them.

The book will prove a useful and reliable guide to the serious student, encouraging him to work by the understanding rather than by rule of thumb.

[4] *Geschlechtskrankheiten bei Kindern.* Herausgegeben von A. Buschke und M. Gumpert. Ein ärztlicher und sozialer Leitfaden für Alle Zweige der Jugendpflege. Unter mitarbeit von W. Fischer-Defoy, F. Krämer, E. Langer. Berlin: J. Springer. 1926. (Demy 8vo, pp. 108; 10 figures. R.M.5.40.)

[5] *Histological Technique.* By H. M. Carleton, M.A., B.Sc., D.Phil., Chapters VII and VIII in collaboration with Frederic Haynes, B.A. Oxford Medical Publications. London: H. Milford, Oxford University Press. 1926. (Demy 8vo, pp. xv + 398; 17 figures. 16s. net.)

## GUY'S HOSPITAL REPORTS.

OF the ten articles in the third quarterly instalment of the *Guy's Hospital Reports*[6] the first four relate to Thomas Addison; Sir William Hale-White's account of this distinguished investigator, who in 1828 started systematic note-taking by the clinical clerks, is noticed elsewhere (p. 607). Dr. Arthur Hurst reports the results of his investigation of eighty-seven cases undertaken to determine the relative frequency of primary constitutional achylia and of achylia secondary to gastritis in Addisonian anaemia, subacute combined degeneration of the spinal cord, and the glossitis syndrome of William Hunter. Dr. Maurice Shaw records a case of apparent recovery from Addisonian anaemia and of return in the hydrochloric acid in the gastric juice, the only question being whether or not the three years should be regarded as an exceptionally long remission or as evidence of cure. The remaining member of these first four articles deals with a case of Addison's disease associated with hyperthyroidism and vitiligo; unfortunately, though the case terminated fatally, a necropsy was not obtained. Dr. Norman Burgess and Mr. E. C. Warner suggest that the hyperthyroidism was secondary—and possibly compensatory—to the adrenal disease. Dr. J. J. Conybeare supplements his experiences of American medicine previously summarized in these *Reports* by a description of the practice of radiology in the hospitals of the United States, and brings out the points of difference from practice in this country. Professor Pembrey and Mr. E. T. Conybeare bring forward experiments on animals, under controlled conditions as regard diet, dealing with the respiratory quotient—namely, the relationship of the volume of oxygen absorbed to the volume of carbon dioxide discharged. Dr. Hugh Barber of Derby describes renal dwarfism from his experience of seventeen cases, and, after discussing the nature of so-called late rickets, concludes that most, if not all, of the cases so described have been renal dwarfs. Drs. H. W. Barber and F. D. Howitt's observations on light sensitization of the skin are extremely interesting, and are prefaced by a good description of the literature; they divide all cases into (i) those in adults due to a bacterial toxin or possibly a bacterial product absorbed from the intestine, and (ii) the juvenile cases in which the sensitizing agent is often, if not invariably, a porphyrin. Drs. Arthur F. Hurst and Adrian Stokes describe with illustrations a case of hypertrophic gastritis (gastritis polyposa) in which gastrectomy was followed by recovery. Writing from the New Lodge Clinic on dental root infections, Dr. F. A. Knott and Mr. A. Ll. Spencer-Payne find that streptococci are constantly present in early infections of the roots, but that no specific strain of streptococci is associated with arthritis or peptic ulcer, and that the production of systemic and metastatic infections depends more on the presence of diminished local resistance than on specificity or selectivity of the streptococcic strain found in them.

## EVOLUTION, GENETICS, AND EUGENICS.

THE second edition, after six impressions of the first, of the successful summary entitled *Evolution, Genetics, and Eugenics*,[7] by HORATIO HACKETT NEWMAN, professor of zoology in the University of Chicago, will be welcomed both by general readers and by students as an unbiased textbook, which contains between two covers material otherwise obtainable only by consulting two or three separate works. It consists of five parts, the first three dealing with the history, evidence, and causal factors of

[6] *Guy's Hospital Reports*, Vol. 76 (Vol. 6, Fourth Series), No. 3, July, 1926. Edited by Arthur F. Hurst, M.D. London: Wakley and Son (1912), Ltd. (Med. 8vo, pp. 253-378; 3 plates, 30 figures, 7 charts. Annual subscription £2 2s.; single numbers 12s. 6d. each.)

[7] *Evolution, Genetics, and Eugenics.* By Horatio Hackett Newman, Professor of Zoology in the University of Chicago. New edition. Chicago, Illinois: University of Chicago Press; London: Cambridge University Press. 1925. (Med. 8vo, pp. xx + 639; 99 figures. 17s. 6d.)

# Reviews.

## A BIPOLAR THEORY OF LIFE.

STARTING more than thirty years ago on a research into the cause of death, the distinguished American surgeon GEORGE W. CRILE became convinced that it was essential first to understand the nature of life, and since then this great problem has continuously engaged his attention and that of his co-workers. The circulation and respiration, blood chemistry, cytology, and biophysics, were examined successively, and he has now brought out a volume on *A Bipolar Theory of Living Processes*.[1] The length and painstaking nature of the research on which it is founded entitle this monograph to serious consideration, especially as it is frankly admitted that the conclusions have not been finally proved. Evidence is brought together in favour of the view that man and animals are bipolar mechanisms and that the organism is not only driven by electricity, but that it was originally called into existence and constructed by electric forces.

Investigation of the cardio-vascular and respiratory phenomena satisfied the author that surgical shock was not due to primary change in these systems. Incidentally his researches led to certain practical conclusions as to the prevention of surgical shock by nerve blocking and as to the value of blood transfusion and its application. Another conclusion reached was that stimulants, so called, as a class increase fatigue and exhaustion, whereas morphine minimizes these effects. Work on the chemistry of the blood showed that the acid-alkali balance of the organism has a vital significance, and from cytological observations it was concluded that the nucleus of the cell is relatively acid and the cytoplasm relatively alkaline, the nucleus and the cell being surrounded by an extremely thin dielectric membrane. The two organs which most promptly succumb to lethal influences seemed to the investigators to be the brain and the liver. With the help of biophysical examination it was concluded that the cells of the body are electric cells in which the comparatively acid nucleus is the positive pole and the cytoplasm the negative pole, and that the maintenance of this acid-alkali balance between the nucleus and the cytoplasm—electric potential—is essential to life; this balance is both due to, and controls, oxidation. The conclusion that the individual cells, like the living organisms, in which the brain is the positive and the liver the negative pole, are bipolar electric mechanisms, would answer the question asked as long ago as 1835 by Becquerel and Breschet, "Are the vital forces of an electric or chemical nature?" As the liver, being the negative pole, accumulates waste products and so keeps clear the great circuit between it and the brain, any failure in this hepatic function will impair the circuit, and as a consequence the tissues of the body will no longer receive the electric discharges on which their structure, activity, and life depend, and death follows. The specific characteristic differentiating the living organism from the non-living materials composing it is regarded as the frequency and force of the electric discharges. Life is a dynamic not a static phenomenon.

This bipolar interpretation is applied to memory, intoxications, fever, and cancer. The cancer cell has a higher electric potential than normal cells, and therefore, it is concluded, multiplies at their expense. The higher incidence of malignant disease in advanced life is explained by the generally falling metabolism diminishing the low defence of the tissues of low capacity and causing an inequality in an already wavering balance between the electric capacity of neighbouring cells. The bipolar theory is also held to explain the usual incidence of sarcoma in early life. The appendixes, which occupy more than a third of the volume, contain the experimental data already published by the author and his collaborators in support of this thesis, quotations from literature bearing on the problem, and a consideration of the energy transformations in the body from an electrical standpoint by J. O. Perrine, Ph.D.

The book is a monument of patient research on a subject as difficult as it is important.

[1] *A Bipolar Theory of Living Processes.* By George W. Crile. Edited by Amy F. Rowland. New York: The Macmillan Company; London: Macmillan and Co., Ltd. 1926. (Demy 8vo, pp. xv + 405; 62 figures. 21s. net.)

## NUTRITIONAL DISORDERS OF CHILDHOOD.

THE third volume of the series of clinical studies in children[2] published by Professor P. NOBÉCOURT treats of disorders of nutrition and growth, and contains some twenty clinical demonstrations; it deals with cases of cretinism and thyroid deficiency, giantism, and other pituitary disorders, different types of obesity, diabetes, acetonaemia, chronic articular rheumatism and fragilitas ossium. Each chapter is the record of a lecture or demonstration; it begins with the presentation of a case or group of cases with their essential details and illustrated with photographs and clinical charts, and ends with a general discussion of the disease, giving references to the literature. The conditions he deals with are for the most part rare, but, in addition to the striking structural changes they exhibit, they raise points of great interest in physiology and medicine; and the method of presentation, beginning with a diseased individual, and proceeding to a discussion of the diseased process, is well suited to maintain the interest of the reader, laying before him the grounds of diagnosis, and from diagnosis passing naturally to treatment, prognosis, and pathology. French medical literature has given us many brilliant examples of this kind of medical writing, and Professor Nobécourt takes a worthy place in that succession. Both by his great clinical experience and his extensive acquaintance with the literature, he is well equipped for the writing of such a book of clinical studies. This volume, dealing with disorders of growth, is up to the high standard of clarity, conciseness, and interest which was reached in his two previous volumes on diseases of the respiration and of the circulation. As a record with commentary of the rare conditions with which it deals it is of great interest and value.

*Nervous and Mental Disorders from Birth through Adolescence*,[3] by Dr. Sachs, is the mature presentation of his long clinical experience in this subject. It is much more than the revision of the last edition of his *Nervous Diseases of Children*, published in 1905, though it naturally incorporates much of its material. Since that date there has been much progress in neurology and a great accumulation of literature, and in the greater leisure secured by release from hospital practice Dr. SACHS, with the assistance of Dr. HAUSMAN, has written what is actually a new book on the subject. The arrangement of the subject is somewhat different. The first portion deals with anatomy, physiology, and the methods of clinical examination. The next and largest section is devoted to organic diseases of the nervous system as a whole, in which there is no definite separation of brain, spinal cord, and peripheral nerves; this is justified by the fact that such diseases as infantile paralysis and epidemic encephalitis may affect any part of the nervous system, central or peripheral. In this section will be found also a chapter devoted to chorea and choreiform diseases, an inclusion which represents a change of neurological opinion. The remaining sections deal with functional and toxic diseases, such as convulsions, epilepsy, headache, etc., with endocrine disorders and trophoneuroses, and with mental conditions, including the neuroses and psychoses, insanity, and the various forms of congenital mental defect.

Infancy and childhood is the period when infections of the nervous system prevail, and when congenital defects in their multifarious variety are met with, and a treatise on nervous disease at this time of life must deal with a large number of conditions, some of which are common and therefore important, such as infantile paralysis and tuberculous meningitis, while others, such as the hereditary and familial affections, though rare, are not only of great

[2] *Clinique Médicale des Enfants: Troubles de la Nutrition et de la Croissance.* Par P. Nobécourt. Paris: Masson et Cie. 1925. (Med. 8vo, pp. xi + 404; 104 figures. Fr. 36.)

[3] *Nervous and Mental Disorders from Birth through Adolescence.* By B. Sachs, M.D., and Louis Hausman, M.D. New York: P. B. Hoeber, Inc. 1926. (Med. 8vo, pp. xvi + 851; 107 figures; 3 plates. 10 dols.)

illustrated. Looking through the tests described, an English reader will be struck by the fact that the popularity of certain methods of analysis has a curious geographical distribution. In urine analysis, for instance, the American methods often differ from our own, and these again from French or German. In each country, no doubt, certain methods have been popularized by pathologists in authoritative positions. This book may be said to give an exposition of the American point of view.

In preparing the fifth edition of his textbook on *Diseases of Infants and Children*[12] Dr. CHAPIN has found a new associate in Dr. ROYSTER, who replaces the late Dr. Pisek. The popularity indicated by the call in America for a new edition is probably due to the condensed, and yet complete, presentation of the subject. The plan and order of the chapters is that usually followed, general considerations, infant anatomy and physiology, and infant feeding being dealt with, and thereafter diseases under the various systems described. There are many illustrations, but their average standard is rather low. Brevity is the soul of wit, and it is far better to err in brevity than in tediousness, so long as a proper standard of clearness and accuracy is maintained. The chapters on the feeding of the healthy infant are well done, but that on digestive disturbances in the infant is too short to be adequate. Important and common diseases, such as tuberculosis, rickets, end even pneumonia, deserve a fuller exposition than they receive; epidemic encephalitis is dealt with in a single page. The authors are not lacking either in knowledge or experience, but they do not select their material so as to achieve accuracy and clearness. The price of the book is high.

Miss DOROTHY MORTON has compiled a useful little book of recipes entitled *Invalid Diet*.[13] In it are found selections of dishes suitable for patients who are anaemic, constipated, dyspeptic, diabetic, or rheumatic. With the help of this book the practitioner need never be at a loss when asked to vary the diet of his patient; and the invalid's friends can be advised to keep within the ambit of the recipes recommended. Miss Morton gives some useful hints on cooking and the care of utensils. We disagree, however, with her statement that "60 fluid drops equal ¼ oz.," which is sufficiently contradicted by the next statement that "1 tablespoonful of oil or liquid equals ½ oz." We are doubtful about the necessity of recommending by name a particular variety of bread and a particular brand of raisin. And the statement that the constipated must drink copiously of pure water needs the qualification that the water should not be too hard.

Dr. WITTELS, we gather, is a German-Austrian. Perhaps this accounts for the jaundiced view he takes of society in his book *An End to Poverty*,[14] and for his resuscitation of the scheme for universal civil service devised by the late Josef Popper Lynkeus. The lot of the professional man in Austria after the war was hard; instinctively he would turn to any theory which might promise an alleviation of his troubles. So it is that with violent diatribes against the pseudo-profound, the obscurantists, priests, and philosophers, and against a curious category of kings, generals, bishops, noblemen, and bank directors, Dr. Wittels advocates the adoption of a system of universal peace conscription. Under it every individual would be enrolled in a "subsistence or minimum army," men serving from the ages of 18 to 30, women from 18 to 25. This subsistence army would be engaged in providing all the inhabitants of the country with food, clothing, and shelter for the whole of life, and with medical attendance and nursing when needed. For the purpose of providing medical attendance the doctors would be enrolled in a State service during the period of their conscription. A sample of the kind of ideas Dr. Wittels favours is his proposal that there should be one of these conscripted doctors for every three hundred persons. On the completion of service the men and women of the minimum army would be absolutely free, and could become capitalists or anything else they might choose. "They could spend their time in any way they pleased." As everyone will agree that the abolition of poverty is a desirable ideal, consideration may justly be given to any proposal to this end, however Utopian. But in the presentation of the case hysterical outbursts should be avoided. EDEN and CEDAR PAUL are diligent and, on the whole, very competent translators, but, as we have remarked before, it is a pity that they do not make a better selection of books to translate.

[12] *Diseases of Infants and Children.* By Henry Dwight Chapin, A.M., M.D., and Lawrence Thomas Royster, M.D. Fifth revised edition. London: Baillière, Tindall and Cox. 1925. (Roy. 8vo, pp. xv + 633; 162 figures. 30s. net.)

[13] *Invalid Diet.* By Dorothy Morton. With a Foreword by J. Johnston Abraham, C.B.E., D.S.O., F.R.C.S.Eng. London: William Heinemann (Medical Books), Ltd. 1926. (Cr. 8vo, pp. ix + 98. 5s. net.)

[14] *An End to Poverty.* By Fritz Wittels. Translated by Eden and Cedar Paul. London: G. Allen and Unwin, Ltd. 1926. (Cr 8vo, pp. 223. 5s. net.)

# Nova et Vetera.

## THE BAD END OF A POLITICAL ANATOMIST.

OF the valuable series of studies in the history of medicine which are being issued under the editorship of Professors Sudhoff and Sigerist, Part II, on Joh. Jessenius,[1] is the work of Professor Pick of Prague. Pick had been engaged for many years in collecting material for a history of the medical faculty of the University of Prague, and the present work was undertaken as a necessary preliminary, Jessenius having been one of the early chancellors. It is a sad reflection that Pick did not live to see his work given to the world.

Jessenius, who traced his descent from the old nobility of Hungary, was born in Leipzig in 1566, six years before the massacre of St. Bartholomew, an event which affords an indication of the spirit of the times. Religious cleavage and political upheaval were the prominent features of the period, and Jessenius, a man wholly devoted to medical science and literature, a Protestant but free from every trace of religious rancour, and totally lacking in the qualities of the political agitator, found himself, by the accidental circumstances of his position, drawn into the very vortex of the storm, with tragical consequences to himself. These troubles, however, did not come upon him until past middle life, and, for the rest, he was free to carry out the work that lay nearest to his heart. He obtained his early medical training in Wittenberg and in his native town of Leipzig, where he wrote his first dissertation, "On the Immortality of the Soul."

Before taking his doctorate, however, he travelled into Italy to complete his education under the great teachers of the University of Padua. There he came under influences which fixed his ambitions; he conceived a desire to become instrumental in disseminating the learning of the Italians in his own country and, more particularly, to introduce into Germany the systematic teaching of anatomy by means of public dissections of the human body. The obstacle of religious tests prevented his receiving the doctorate, and although he had testimonials from many of the Paduan professors, showing him to be more than qualified for the diploma, these were of little service to him in the German universities. It was open to him to obtain the diploma of "doctor bullatus" from certain professors who were authorized to confer medical degrees, legitimatize bastards, and the like, but the universities did not favour this cheap mode of graduation (the poet-laureateship had on one occasion been conferred at the price of eight thalers). Jessenius, with much practical shrewdness in so young a man, adopted a course which was sometimes successful in those days, when dedications counted for more than they do now and magnates were somewhat susceptible to flattery. He obtained the good graces of the Emperor by dedicating to him a treatise on "Human and Divine Philosophy," and he was also fortunate enough to gain the ear of the Grand Almoner. In the sequel the Emperor, as a special favour, conferred on him the full doctorate, with the right to occupy professorial chairs in any part of the Holy Roman Empire, authorizing any obstruction met with in the exercise of the same to be countered by a fine of seventy gold marks. In like manner the dedication of two books on Aristotle to the celebrated and influential theologian Polycarp Leyser is considered to have gained him the chairs of anatomy and surgery in the University of Wittenberg, at the early age of 29. Two years later he was appointed Rector of the University. His position being assured, he rapidly proved

[1] *Joh. Jessenius de Magna Jessen: Arzt und Rektor in Wittenberg und Prag Hingerichtet am 21 Juni, 1621.* Ein Lebensbild aus der zeit des Dreissigjährigen Krieges von Prof. Dr. Friedel Pick. Studien zur geschichte der Medizin. Heft 15. Leipzig: J. A. Barth. 1926. (8×11¼, pp. v + 315: illustrated. M.30.)

evolution, the fourth with genetics or the modern study of evolution by means of experimental breeding, cytology, and the statistical method, which is concerned with heredity and variation more or less to the exclusion of environment and training.

In the fifth and last part, on eugenics, the old but still interesting question of the relative importance of heredity on the one hand, and of environment and training on the other hand, is discussed. The author mentions certain fallacies which, he holds, are inherent in Galton's attempt to elucidate this problem by the collected data of identical and fraternal twins, and describes his own observations on more than two hundred quadruplets of the nine-banded armadillo of Texas, which lead him to the conclusion that the average potency of heredity is about 93 per cent., as compared with 7 per cent. for both environment and a third factor which, he suggests, might be called the distributional or developmental inaccuracy. The order of the presentation of the evidences of evolution has been altered in this edition as the result of further teaching experience that, for an appreciation of the palaeontological and geographical data, the student must first have a knowledge of the principles of morphology and comparative anatomy. In the section on genetics the Mendelian theory and the laws of sexual reproduction are clearly set out with many diagrams, as are the arguments for and against the inheritance of acquired characters, which bear on the controversy between the mutationists and the Lamarckians. Accounts of the recent anti-evolution campaign and the Scopes trial in America are among the additions to this edition.

This handbook is based on more than twenty years' experience in teaching students, and contains numerous extracts, sometimes of considerable length, from authorities on the subject. The evidence thus collected is impartially presented to the reader, who is then left to form his own decision on disputed points.

## THORPE'S DICTIONARY OF CHEMISTRY.

VOLUME VI of THORPE'S *Dictionary of Applied Chemistry*[8] covers the range of initial letters S and T (to tetra). In our comments on the preceding volumes of this edition we have remarked on the catholicity of the subjects treated. That now before us presents the same extensive variety, which we may illustrate by reference to the following instances: an article on the Japanese beverage saké describing its composition and mode of preparation, and adding incidentally the information that it is usually taken hot immediately before meals; a monograph on sewage, showing the applicability of various methods of treatment for purification, and a treatise on the subject of solution discussing its theoretical aspects. Perhaps the most striking example of the thoroughness of the work appears under the heading of sugar, where space is found for the botanical description of the sugar-cane and sugar-beet, of methods of production and refining, with illustrations of manufacturers' plant and of statistics of production and methods of analytical examination, including the description of several polarimeters; lastly, a full account is given of the several methods by which the percentage of sugar may be determined in blood. There follows a discussion on insulin as a means of controlling blood sugar in diabetes mellitus, written by Professor Barger.

Notwithstanding the great variety of matters that come under the heading of applied chemistry, it is remarkable to note the large number directly related to medical science. All these appear to contain the newest information contributed from authoritative sources. There is an article on synthetic drugs, also written by Professor Barger, in which production by synthesis is discussed in its relation to therapeutic and pharmacological needs, and a catalogue of synthetic drugs, reciting their uses, advantages, and imperfections, is provided. This volume is altogether a notable addition to a notable series.

[8] *A Dictionary of Applied Chemistry.* Vol. VI. By Sir Edward Thorpe, C.B., LL.D., F.R.S., assisted by eminent contributors. Revised and enlarged edition. London and New York: Longmans, Green and Co. 1926. (Med. 8vo, pp. viii + 791; illustrated. £3 net.)

## BIRTH CONTROL.

IT is a relief to read a book on birth control which is written in dignified and measured language and free from extravagance. The little book on *Birth Control and the State*,[9] by Dr. C. P. BLACKER, is a plain statement of the arguments put forward by the protagonists and the antagonists, and he puts the assertions of the antagonists first; to them "it is a pernicious and unnatural practice leading to the degeneracy and, ultimately, to the extinction of the race." He gives the reasons underlying this sweeping statement, and then the arguments on the other side. One difficulty he points out exists, "that from the technical point of view *a really satisfactory contraceptive does not yet exist.*" Thereafter the author leads the reader up to the purpose of the book, which is to convince him that the great danger of civilization lies in unequal overpopulation. Dr. Blacker points to the past and present dangers due to the excessive fertility of the Japanese, the effects of ancestor worship, and to what we know happened in Germany. He maintains that only by an international adjustment of population that can be attained by biological effects can there be a cessation of these mad interludes. He believes that the Ministry of Health should take a hand in instructing the population. Cold official action in this regard would reduce the tension of the quarrel between the opponents and advocates. The practice is well known amongst the better educated of the people, but by all accounts scarcely known among the masses. Yet he adduces evidence, some of it novel, that the excessive fertility found amongst the less affluent sections of the people is not desired by them. But his great argument in favour of limitation is that thereby international relations may be improved: "In this way the medical profession, in whose hands the health of each community lies, would take the first step in the direction of an international control of population, and would thereby lay the basis for a genuine and permanent world-peace."

This is a book that could be read by the most delicately minded maiden lady; it would not bring a blush to her cheek, but it would certainly "put her wise" to the purpose of birth control.

## NOTES ON BOOKS.

A SIXTH edition, revised by Dr. ARNOLD CHAPLIN, has been issued of JOHNSON SMITH'S useful book *A Medical and Surgical Help for Shipmasters and Officers in the Merchant Navy.*[10] Its aim is to afford help in the treatment of injury and disease occurring at sea or under conditions in which there might be no possibility of professional assistance. The subject is treated in an interesting way, and in language easily understood by the layman. Preliminary chapters deal with the preservation of health and the treatment of illness on board ship. The medicine chest is then described, and there is a reasonably brief chapter on the construction of the body. The rest of the book deals with diseases and injuries of various parts of the body, and with poisons. A useful chapter on cooking on board ship, with recipes for invalids, concludes the volume. The book must be of the utmost value to the masters and officers of the mercantile marine when faced with the necessity of rendering first aid in cases of sickness or injury.

The textbook which Drs. FEINBLATT and EGGERTH have written, entitled *Clinical Laboratory Medicine*,[11] contains an account of all the ordinary laboratory tests which might be done by a physician with a little special training in laboratory methods. Other subjects are dealt with also which are perhaps better left to the pathologist—such, for instance, as the Wassermann test—but even these more technical subjects are handled from the clinical point of view. The descriptions are brief and supplemented by references (which, by the way, are most inconveniently placed so as to interrupt the text). But apart from this the book is well put together and adequately

[9] *Birth Control and the State: A Plea and a Forecast.* By C. P. Blacker, *M.C.*, M.A., M.R.C.S., L.R.C.P. London: Kegan Paul, Trench, Trubner and Co., Ltd. New York: E. P. Dutton. 1926. (Fcap. 8vo, pp. 95. 2s 6d. net.)

[10] *A Medical and Surgical Help for Shipmasters and Officers in the Merchant Navy.* By William Johnson Smith, F.R.C.S., revised by Arnold Chaplin, M.D., F.R.C.P. Sixth edition, revised. London: C. Griffin and Co., Ltd. 1926. (Post 8vo, pp. xviii + 337; 82 figures. 6s. net.)

[11] *Clinical Laboratory Medicine.* By Henry M. Feinblatt, M.D., and Arnold H. Eggerth, A.B., A.M. London: Baillière, Tindall and Cox. 1926. (Roy. 8vo, pp. x + 424; 87 figures. 22s. 6d. net.)

## THE VALUE OF MALARIAL THERAPY IN DEMENTIA PARALYTICA.

### PRELIMINARY REPORT FROM THE LONDON COUNTY MENTAL HOSPITALS SERVICE.

THE following preliminary report deals with the results of three years' malarial treatment of general paralysis in the various mental hospitals of the London County Council.

In order to furnish comparable evidence as to the frequency of remissions in untreated cases figures have been obtained from four of the L.C.C. mental hospitals dealing with cases admitted during the three years from August 1st, 1920, to July 31st, 1923, who were diagnosed clinically as being general paralytics and who showed positive Wassermann reactions in the cerebro-spinal fluids. The fact that the period under review immediately precedes that in which malarial treatment was undertaken is in some degree a guarantee that changes of administrative policy as to the discharge of patients or any marked attenuation of the severity of the disease are not a factor for the results obtained during the period of malarial treatment.

TABLE I.

| Period of Observation. | Number Admitted. | Number Discharged as Improved. | Number Died. |
|---|---|---|---|
| August 1st 1920, to July 31st, 1923. | 227 | 6 (2.6%)* | 141 (62.1%) |

* Of these one was readmitted as relapsed.

Since February 3rd, 1923, when the first paralytic to be treated with malaria in the London County Mental Hospitals Service was inoculated at Cane Hill Mental Hospital, malarial therapy has been carried out continuously in the London County service.

This report, however, deals with the first cases treated, the more recent inoculations being omitted. In Table II are shown the results of malarial therapy in all cases whose course of eight or more febrile paroxysms had been concluded by August 31st, 1925. The shortest period during which any patient in this table has been watched since the termination of the malaria is six months, but the majority of the cases have been watched for a much longer period. The term "discharged" includes all patients who have been sufficiently well to be sent to their homes; transfers to other institutions are not included.

TABLE II.—*Results obtained with Malarial Treatment.*

| Mental Hospital. | Number Treated. | Number Discharged | Number Died. | Reported by |
|---|---|---|---|---|
| Bexley ... ... | 35 | 14 (40%) | 6 (17.1%) | Dr. D. R. Alexander. |
| Cane Hill ... | 22 | 9 (40.9%) | 3 (13.6%) | Dr. W. M. McGrath. |
| Claybury ... | 73 | 28 (38.4%) | 17 (23.3%) | Dr. G. de M. Rudolf. |
| Colney Hatch ... | 25 | 2 (8%) | 3 (12%) | Dr. F. G. L. Barnes. |
| Hanwell ... ... | 28 | 9 (32.1%) | 10 (34.3%) | Dr. G. A. Lilly. |
| Horton ... ... | 8 | 2 (25%) | 1 (12.5%) | Dr. W. D. Nicol. |
| Totals ... | 191 | 64 (33.5%) | 40 (20.9%) | |

This table includes all cases who have been sufficiently well to be sent to their homes; transfers to other institutions are not included.

On comparing Table II with Table I it will be observed that the percentage of remissions is much greater in the treated than in the untreated cases. One-third of treated, unselected cases would appear to be the maximum number of good remissions that can be expected with malarial therapy. Gerstmann, in Austria, reports that of 400 treated cases who were watched for at least two years after treatment 33 per cent. underwent good remissions and 14.25 per cent. remained stationary or showed incomplete remissions. Nonne, in Germany, reporting on 450 treated cases, also found that about one-third of the patients were able to return to their occupations. If patients with only short histories of general paralysis are treated a higher percentage of remissions is obtained, as shown in Table III, which deals with the first 63 cases treated at Claybury Mental Hospital. All cases were clinically advanced types, and were sufficiently severe to be legally certified as insane and to require detention.

TABLE III.—*Relation of Duration of Dementia Paralytica to Prognosis.*

| Duration of Disease before Treatment. | Number Treated. | Number Discharged. |
|---|---|---|
| Two to eighteen months ... ... ... | 38 | 23 (60 5%) |
| Nineteen to over thirty months ... ... | 25 | 2 (8.0%) |

### *Salvarsan Treatment.*

Wagner-Jauregg, the originator of malarial therapy, advises that salvarsan be given following the course of febrile paroxysms, but several writers have stated that equally good results have been obtained without the use of this preparation. With the object of endeavouring to determine whether it is advisable to follow the malaria with salvarsan Table IV has been constructed from the cases in Table II. In order to avoid the personal element as far as possible only those hospitals at which cases have been treated both with and without salvarsan are included. The total quantity of neosalvarsan given to each patient invariably exceeded 2 grams, the greatest quantity being given to the cases at Hanwell Mental Hospital, each patient receiving 3.6 grams.

TABLE IV.—*Comparison of Malarial Treatment, with and without Salvarsan.*

| Mental Hospital. | Malaria alone. | | | Malaria + Salvarsan. | | |
|---|---|---|---|---|---|---|
| | Number Treated. | Number Discharged | Number Died. | Number Treated. | Number Discharged | Number Died. |
| Cane Hill | 5 | 2 (40%) | 2 (40%) | 17 | 7 (41.2%) | 1 (5.9%) |
| Claybury | 61 | 23 (37.7%) | 17 (27.9%) | 12 | 5 (41.7%) | 0 |
| Hanwell... | 21 | 6 (28.7%) | 9 (42.8%) | 7 | 3 (42.9%) | 1 (14.3%) |
| Totals ... | 87 | 31 (35.6%) | 28 (32.2%) | 36 | 15 (41.7%) | 2 (5.5%) |

The difference in the death rate of patients unfit for discharge in the two series of cases is very striking, but there is little difference in the discharge rate.

Dattner reports that in Wagner-Jauregg's clinic 50 per cent. of the cases treated with malaria and salvarsan have been able to return to their occupations, whereas only 25 per cent. of cases treated with malaria alone have been able to do so. In Horton and Bexley Mental Hospitals malaria alone was used. In Colney Hatch Mental Hospital malaria and salvarsan were invariably combined.

### *Summary.*

Malarial therapy produces a greater number of remissions and a smaller death rate than occurs in untreated cases. Complete remissions occur in about one-third of the cases in a mixed series, but in a much greater proportion if only cases with histories of dementia paralytica of less than eighteen months are treated.

The addition of neosalvarsan to the febrile treatment decreases the death rate amongst the cases unfit for discharge, and perhaps increases the number of complete remissions that occur.

All the medical officers are agreed that in a majority of the cases treated by malarial therapy which proved to be unfit for discharge a marked improvement in general well-being, cleanliness, and conduct was observed.

The medical officers contributing to this report are Dr. D. R. Alexander, Bexley Mental Hospital; Dr. F. G. L. Barnes, Colney Hatch Mental Hospital; Dr. J. Brander, Bexley Mental Hospital; Dr. G. A. Lilly, Hanwell Mental Hospital; Dr. W. M. McGrath, Cane Hill Mental Hospital; Dr. W. D. Nicol, Horton Mental Hospital; Dr. G. de M. Rudolf, Claybury Mental Hospital.

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himself to be a man of learning and an author of distinction, not only in medicine and surgery, but in theology, history, and philosophy also; in his particular art he was soon recognized as one of the leading surgeons of the day. He acquired an extensive practice among the nobility and in the higher circles of society, and was appointed physician to the Court. In educational matters he lost no opportunity of holding his favourite public Anatomies or Dissections, and was indefatigable in encouraging disputations, as they were called, or public discussions on medical subjects, accounts of which in a great many instances were subsequently published, and remain as valuable records of the medical knowledge of the period. He attached great importance to *post-mortem* examinations, and an excellent scheme which he devised, of distributing notes of these with their clinical histories to a large circle of his fellow-practitioners, with the object of supplementing their limited experience, entitles him to be considered a pioneer in medical journalism. Although not himself an original thinker, he undoubtedly did much, by his numerous writings and his personal influence, to bring his countrymen abreast of the times in medical knowledge. His principal work was a treatise on surgery, written in Latin, and the fact that it was considered worthy of translation into German more than fifty years after his death is sufficient evidence of the high estimation in which it was held. He had a sound judgement in surgical matters, and is regarded as the founder of rational surgery in the German universities. He freed himself from many of the prejudices that were rife at the time, more particularly from the prevalent excessive use of drugs and the evils arising from the tendency to caste within the profession.

During his residence in Wittenberg the interest of Jessenius turned towards the University of Prague, the oldest foundation of the kind established on German soil (founded in 1348). The fame of the old university had greatly declined; its medical college was wellnigh extinct, and what remained was degraded to the lowest degree. Jessenius was moved to attempt its regeneration, obtaining, as a preliminary step, permission to hold a public Anatomy there, the first, as he was proud to think, that was ever held in the university. It was a notable function. The Dissection commenced on June 8th, 1600, before an audience of nearly a thousand persons, including a number of the most distinguished and learned men of the city, students, and gentry; and, being continued from day to day, terminated, with God's help and amid general applause, on the 12th, a gentle rain at nights ensuring the necessary coolness of the atmosphere, and clear skies by day permitting the dissections to be held in the open. The observations noted in this celebrated Dissection formed the basis of a "Treatise on Anatomy" which Jessenius wrote in praise of that science and which is considered to be one of his greatest works. He gave several similar Anatomies in Prague, but he was never a professor in the university; on the other hand, his influence gave a great impetus to medical studies. His Anatomies, more especially, were highly valued and often extolled in Latin verse by the poets of the time, and it is related that he received a poetical invitation to a dinner at the university on February 22nd, 1605, given in his honour and in recognition of his anatomical services in Prague.

In 1617 he was appointed to the Rectorship, but in the following year those political events occurred which brought his academical labours to an end and were to prove his ruin. The troubles had their origin in certain religious concessions which the Emperor had granted to the Protestants of Bohemia. The latter appear to have overstepped in some minor degree the limits of freedom conferred on them, with the result that two of their churches were ordered to be demolished. This ill advised measure aroused the indignation of the Praguers and, what was more serious, gave an opening for the activities of the extremists in the city. The Estates were convened; two of the Emperor's representatives, who were held responsible for the outrage, were denounced and sentenced to be "defenestrated"; a delegation was sent to the palace, and the obnoxious Statthalters and their secretary were unceremoniously flung from the palace window into the courtyard, sixty feet below. This occurrence naturally gave offence and is generally regarded as the proximate cause of the Thirty Years War. The irritation and suspicion of the Bohemians were further increased by the recent succession of Ferdinand II, a determined champion of Catholicism, to the imperial throne and the thrones of Hungary and Bohemia. An embassy was immediately dispatched to the Hungarians, with the object of delaying the coronation, the intention being to gain their concurrence in forcing the king to dismiss his evil counsellors; such at least was the ostensible reason, though there seems little doubt that the real object was to draw the neighbouring countries into rebellion.

It was at this juncture that Jessenius entered the tortuous path of politics, by consenting to act as ambassador in the mission. He was coldly received in Hungary, and ultimately arrested and carried to Vienna, where he remained a prisoner for six months. But although in this affair he was treated as suspect, there is good evidence that he had no thoughts of rebellion at that time. In a prayer which he distributed to the schools in Bohemia shortly before the mission, he referred to the Emperor as "our gracious Lord and King"; when accused in Hungary of desiring to set that country in a blaze, he retorted that it was a sesquipedalian lie (a lie a foot and a half long); when interrogated by the Imperial Chancellor during his imprisonment in Vienna, he expressed the hope that of the three available measures applicable to the situation in Bohemia—namely, dieting, physic, and ferrum—the Emperor would choose the milder measures and not the latter. The Chancellor reminded him of the daily increasing excesses of the Bohemians; Jessenius, in fact, does not seem, at this time, to have possessed that political acumen which is required in order to detect the real beneath the ostensible. The rest of the story is soon told. The next prayer that he distributed to the schools contained no reference to the Emperor; a second mission, headed by himself, had frankly for its object the drawing of the neighbouring countries into rebellion; the battle of the White Hill was fought and lost, and Jessenius and many of the citizens of Prague found themselves prisoners under sentence of death. The sentences varied in severity; that on Jessenius was, apparently, the most severe—to have his tongue cut out and to be quartered alive. This was so far mitigated that decapitation preceded quartering. Jessenius preserved his courage and his good humour throughout this ordeal. He regretted that his tongue, which had so often uttered words deemed worthy of approbation before emperors, kings, and princes, should be cut out; for the rest he cared little, and "by this time to-morrow, gentlemen," he said, addressing his friends, "I shall, unlike yourselves, have no need to trouble about the price of corn, or whether there is to be peace or war."

Very little is known of the private life of Jessenius. A description of his wife has been preserved, and is of interest as exhibiting, in contrast with our present conceptions, the feminine ideal of the time. We are told that "she was deeply read in the Word of God, and, having no children, spent the greater part of the day in hymns and prayer and in the study of the Scriptures. She honoured and was obedient to her husband at all times; was ever faithful to him, and, most important of all, forbearing and indulgent in the management of him, never taking anything amiss or opposing him, but regarding his will as law. She was circumspect and clean in her household economy, and sought refinement rather than luxury. She never shouted at the servants, but controlled them with a kindly eye. Discreet as Abigail, she seldom walked abroad, and then always with a serious and modest demeanour."

Beyond a few trifling cuts and bruises, the defenestrated Statthalters experienced no ill effects from their fall. This seemingly miraculous escape from the jaws of death was, on the evidence of eye-witnesses of the occurrence, ascribed to the direct intervention of saints and angels, aided, as some supposed, by the fact of their having fallen on a large dung-heap which lay at the foot of the castle.

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SATURDAY, OCTOBER 2ND, 1926.

## FACTORS LEADING TO THE NORMAL TERMINATION OF PREGNANCY.

EXPERIMENTS continue to be made for the purpose of determining the reason why at a particular point of time normal pregnancy terminates. In the *Journal of Physiology* (December, 1924) there was a paper by Dr. W. E. Dixon and Mr. F. H. A. Marshall (reader in agricultural physiology at Cambridge) on the influence of the ovary on pituitary secretion as a probable factor in parturition. A further communication by these two authors to the Section of Therapeutics and Pharmacology of the Royal Society of Medicine was reported in the BRITISH MEDICAL JOURNAL of November 21st, 1925 (p. 947). They came to the conclusion that in the absence of fully formed corpora lutea the secretion of the ovary had a specific effect in stimulating pituitary secretion; but that when corpora lutea were present ovarian secretion had no effect on the pituitary gland. Consequently they were of opinion that during pregnancy the dominating influence of the corpora lutea hindered pituitary effect on the uterine muscle, whether by neutralizing or by inhibiting normal ovarian secretion was not clear. When the corpus luteum began to involute the uterus showed increased irritability, and with the re-establishment of normal ovarian endocrine mechanism the ovarian secretion, working through the pituitary gland, became an important factor in bringing about labour. Experiments by Dr. Dixon had already shown that normal ovarian secretion, unlike extracts of testis, epididymis, pancreas, and corpus luteum, had an exciting effect upon the secretory activity of the pituitary gland, but that this action, and the uterine contraction promoted by it, were inhibited during pregnancy, probably by the corpus luteum. The experiments in which Mr. Marshall took part showed that ovarian extract was without any direct specific action on the uterus; that in the presence of fully formed corpora lutea the pituitary gland ceased to be activated by ovarian secretion; but that at the close of pregnancy, when the corpora lutea were in an advanced stage of involution, the normal secretory activity was once more produced, and the pituitary was excited to secrete in greater quantity. When the threshold stimulus of the pituitary secretion upon the uterus was reached and passed labour pains set in. It was not suggested that the ovario-pituitary endocrine mechanism was the sole factor in producing labour, but some further exciting cause, apart from the foetus and the uterus, was needed to account for the onset of labour.

About the same time that Dixon and Marshall were conducting their experiments, Clark and Knaus had been studying the conduction of uterine contractions in the rat at different stages of the oestrus cycle. The conclusions they reached were that in the di-oestrus period there is a slow conduction between the ovarian and the middle part of the uterus, while the vaginal part contracts independently. Under the action of pituitary extract, however, all three parts of the muscle contract simultaneously, just as they do at oestrus or in early pregnancy. In comparing the two sets of observations the suggestion arose that the changes in the behaviour of the uterine muscle are due to variation in pituitary secretion; that during pregnancy there is a steady increase in its amount; and that a sudden increase at the end of pregnancy brings about labour. It occurred to Knaus that, were this so, by injecting an appropriate quantity of pituitary gland it should be possible to induce parturition at any stage of pregnancy. It was found, however, that this was not the case.

The rabbit has a gestation period of thirty-one to thirty-two days, and for the same strain of rabbits this period is very constant. In Knaus's experiments the initial dose was that which would just cause visible uterine contractions. A continuous effect could be obtained by repeating the dose every hour for about ten doses. The investigation was begun on rabbits nearing the end of pregnancy. It was found that injection of the equivalent of 0.0075 mg. of moist posterior pituitary lobe on the thirty-second or thirty-first day of pregnancy resulted in the birth of one young rabbit within a few minutes. When the dose was repeated a few hours later a second young was born, and so on. If the dose was increased tenfold all the young were born within ten minutes. Precautions were taken to ensure that the doe was not already in labour and that the pituitary injection was the actual cause of labour. The young were usually born before the placenta, whereas in the normal animal the foetus is born wrapped in the membranes and placenta. On the thirtieth day the dose had to be increased to 0.3 mg. to induce parturition, and the response was delayed. On the twenty-ninth day the dose had to be still further increased to 0.6 mg., and eight doses were required to bring about a response. In rabbits between the twenty-eighth and eighteenth days of pregnancy nine doses of 2 mg. were necessary to induce a response, which was abortion of the young some days later. Investigation suggested that the cause of death was haemorrhage into the spongy placental tissues. In rabbits between the seventeenth and first day of pregnancy no reasonable dose of pituitary had any effect on pregnancy. Amounts up to 15 mg. were used, and as the rabbit's pituitary gland weighs only 7.5 mg. this was far in excess of any quantity the animal could normally produce.

Knaus believes that his experiments show that during pregnancy there is no increase of irritability or sensitivity of the uterus, but a regular rise of contractility of the muscle. For the first three months it is said that the uterine muscle fibres increase in number, but after that there is only increase in the size of the fibres and their power of contraction. The larger the muscle cell the greater its ability to shorten itself. In consequence of this the effect of pituitary extract upon the muscle increases steadily as pregnancy advances. But Knaus finds that until near the end of pregnancy the uterine muscle cells have not grown enough to break down the tissues of the spongy layer of the placenta, even when they are stimulated by pituitary secretion. Near the end of pregnancy the muscle cells have grown so large that their maximum contraction, when caused by pituitary extract, will result in delivery. At full term the contractility of the enlarged muscle fibres is such that their spontaneous contractions alone finally cause birth, and no sudden influence or stimulus need be postulated. The contractions of labour are to be regarded as the final stage in an expanding series of events. In fact, according to Knaus, the actual process of birth is merely an affair of the uterine muscle. The growth of the muscle is due to a hormone influence, and, so far as present knowledge

## COOMBE LYING-IN HOSPITAL, DUBLIN, 1826–1926.

A centenary is sometimes more than a chronological excuse for congratulation, and the celebrations in Dublin during the third week in September point to something even more notable than the triumph of the Coombe Lying-in Hospital over the difficulties of 100 years. An important transformation of outlook has occurred since two poor women, dying in the snow, were responsible for the birth of a great life-saving institution. The comparative helplessness of medical science in 1826 has gradually given way to an increasing power to prevent, as well as to cure, disease, while the present-day impatience with the slow progress in the reduction of maternal mortality implies an approaching improvement in this respect also. The philanthropy which brought the Coombe Lying-in Hospital into existence has now been reinforced by the knowledge and skill so largely due to the patient research and educational work in such institutions throughout the world, and thus it is eminently fitting that a congress in Dublin, under the presidency of Sir William Smyly, should attract eminent visitors from the United States, France, Austria, Sweden, and Germany to indicate the lines of future progress.

### *History of the Coombe Hospital.*

In a previous reference on September 11th (p. 499) to the centenary celebrations we referred briefly to the dramatic circumstances attending the origin of the Coombe Lying-in Hospital, which was opened by Dr. John Kirby in 1826, with the assistance of Dr. Richard Reed Gregory, who became its first Master, in 1829. Gregory's early work was consolidated by the second Master, Dr. Thomas M'Keever (1832-1835). It is interesting to recall that the hospital drew its first support from an institution for medical education, and that the educational side of its curative work has never been overlooked in the years that followed. It is therefore fitting that the importance of education should have been assigned a prominent part in the programme of the centenary celebrations. Competition with the rival school at the Rotunda Hospital was at first acute, and even bitter, but after 1838 it was realized that there was need and room for both; public recognition followed, and in 1854 the annual sum of £200 was granted by Parliament for the assistance of the Coombe Hospital, which contribution has been received regularly since then.

The hospital was granted a Royal Charter in 1867, by which its regulations were confirmed and the certificates issued to its students were recognized as valid. The generosity of Benjamin Guinness, Lord Mayor of Dublin in 1851, and later of his son, Sir Arthur Guinness, enabled building operations on a large scale to be undertaken to meet the demand for increased accommodation. Although architectural difficulties and disasters delayed the completion of the work for many years the new hospital was eventually opened in 1877, too late, unfortunately, for the joint Masters, Drs. John Ringland (1841-1876) and James Hewitt Sawyer (1845-1875), who had toiled unsparingly through times of great difficulty and depression, to share in the joy of final achievement which opened a new and happier era in the history of the hospital. Their successor, Dr. George Hugh Kidd, who had been appointed Assistant Master to the hospital in 1847, and assistant obstetric surgeon in 1868, held the post of Master from 1876 to 1883; like his predecessors, his obstetrical and gynaecological skill was based on a wide general medical knowledge, and the breadth of his outlook contributed appreciably to his success as Master. The Coombe Hospital from his time has gained steadily increasing fame, both as a hospital and a teaching centre, and in the September issue of the *Irish Journal of Medical Science* Dr. T. P. C. Kirkpatrick, Registrar of the Royal College of Physicians in Ireland, describes in detail the steps by which the hospital has climbed to its present eminence.

### *Present-day Problems.*

The annual report of the hospital for 1925, which is published also in our contemporary, shows that 1,934 admissions were recorded, an increase of 186 as compared with the previous year. The Master, Dr. Louis Cassidy, states that the percentage maternal death rate was 0.85, and the number of morbidity cases 42, representing a percentage of 4.5, or an average of 1 in 22 cases. This figure shows a large reduction as compared with the return for the previous year. In 24 cases of morbidity commencing during the puerperium no vaginal examinations were made, no perineal lacerations occurred, and no surgical intervention was employed. Dr. Cassidy suggests, therefore, that some very interesting questions are thus raised, and in particular, attention is invited to the possibility of puerperal sepsis being attributable to lowered bactericidal properties of the maternal serum before the onset of labour. It is announced that investigations are proceeding with a view to clearing up this particular problem.

### *Centenary Celebrations.*

On September 14th an inaugural reception was held in the Royal College of Surgeons by the governors of the Coombe Hospital, and on the following evening Alderman J. Hubbard Clark, chairman of the board of governors, gave a celebration dinner. The toast of the hospital was proposed by Professor Munro Kerr of Glasgow and acknowledged by the Master of the Coombe Hospital. The other toasts were "Prosperity to Ireland," proposed by Mr. Andrew Fullerton, C.B., C.M.G., President of the Royal College of Surgeons in Ireland, and "The visiting gynaecologists," proposed by Mr. W. Doolin, editor of the *Irish Journal of Medical Science*; to the latter toast Mr. Comyns Berkeley of London, Professor J. P. Faure of Paris, and Professor P. Werner of Vienna responded. A special performance of *Juno and the Paycock* was given by the Abbey Theatre Company on September 16th; and the distinguished poet, Mr. W. B. Yeats, director of the Abbey Theatre, in welcoming the visitors, explained that it had seemed only right to select a play which dealt with the life of the poorer residents of Dublin, for whose benefit the work of the Coombe Hospital was being carried on. Since nearly half the audience had been students of the Coombe and Rotunda Hospitals, and were thus very familiar with the conditions of life portrayed in the play presented, its choice was very much appreciated. Other social festivities included a visit to the Coombe Hospital, a garden party, and a polo match.

### *The International Congress.*

The attractive nature of the scientific side of the centenary celebrations was clearly shown by the average daily attendance, which remained at about 200 until the end. The educational value of the cinematograph was emphasized practically by Professor J. P. Faure of Paris, who showed a film dealing with abdominal hysterectomy, and by Professor A. Couvelaire of Paris, who illustrated the low form of Caesarean section. Professor Essen Möller of Lund read a paper on the teaching of obstetrics in Sweden, and the conditions elsewhere were described by Professor A. Couvelaire (Paris), Professor Munro Kerr (Glasgow), Professor J. B. de Lee (Chicago), Professor Fletcher Shaw (Manchester), and Mr. Comyns Berkeley and Mr. J. S. Fairbairn (London). Mr. Eardley Holland (London) read a paper on the unnecessary induction of labour. Professor Munro Kerr of Glasgow opened a discussion, on the second day of the congress, on the lower uterine segment Caesarean section operation, and Professor Hinselmann of Altona, on the third day, introduced a discussion on eclampsia by suggesting that from the clinical point of view this disease was due to a kind of angiospasm of the peripheral circulation. Other subjects dealt with included the treatment of climacteric haemorrhages, by Professor Werner of Vienna, and the cause of menstrual pain, by Professor Beckwith Whitehouse of Birmingham. Professor A. Donald of Manchester gave a short account of the history of antisepsis and asepsis in obstetrics; Professor Louise McIlroy discussed the value of *x*-ray examinations in pregnancy; and Professor de Lee of Chicago raised the question whether parturition in modern civilization was not to be considered a pathological rather than a natural process. The success of the whole congress was largely due to its secretary, the Master of the Coombe Hospital.

It is announced that the proceedings of the congress will be published in book form as a supplement to the *Irish Journal of Medical Science*, and the volume is expected to appear before the end of November.

the cow's milk is chiefly manufactured in the animal's body, and the quantities of this vitamin taken in normal food are not sufficient to produce a milk rich in vitamin D. Doubtless if the cow had been treated with cod-liver oil, and thus given an excess of vitamin D in the food, a milk rich in vitamin D could have been produced.

The practical importance of this conclusion is very great, for, as the authors point out, a large proportion of the cows that provide the milk of our urban population are stall-fed, and their milk must be assumed to be deficient in the antirachitic factor throughout the year. Moreover, these conclusions can be extended to nursing mothers, and it seems to follow that the milk taken by a breast-fed child will be deficient in the antirachitic factor unless the mother either gets a reasonable amount of exposure to sunlight or is given cod-liver oil. Children living in our smoke-covered cities must therefore receive very little vitamin D in their milk throughout the winter, even when they are breast-fed. This deficiency will be compensated for if the child itself gets a reasonable amount of exposure to sunlight, or if the child is given cod-liver oil.

The evidence as to the relative importance of diet or sunlight in the prevention of rickets has fluctuated from one side to the other during the past eight years; but these experiments definitely support the view that sunlight is the more important factor, since they suggest that in a cow in the open air on a normal fresh feed the quantity of antirachitic factor actually produced by the cow is greater than the quantity taken in the food. As regards the prevention or cure of rickets, the administration of cod-liver oil would appear to be the simplest remedy. Exposure to ultra-violet radiations is probably a still more active remedy, but is expensive to organize on a large scale. These experiments confirm the view that the incidence of rickets could be greatly reduced by the prevention of smoke and the improvement of housing in our cities, but these are remedies that involve a considerable reorganization of our social system.

## TAILED CHILDREN AND TAILED RACES.

Amongst the specimens added to the museum of the Royal College of Surgeons of England during the present year is a very good example of a human tail. It was removed by a surgeon from a child a few weeks after birth, and measures fully four inches in length. It is covered by skin, and contains striped muscular fibres embedded in fibrous tissue, but, as is usual in such cases, vertebrae and joints are absent. Such structures represent the persistence of the external tail which projects from the caudal end of every human embryo during the fifth and sixth weeks of development, but which should undergo retrograde changes in the seventh week and disappear in the eighth, the post-anal dimple being the only trace left in normal children. Occasionally retrogression fails, and the tail increases in length and in thickness with the growth of the body, and forms the structure which surgeons are called on to remove from newly born children. In a case recorded by Dr. Ross Harrison, the inventor of the modern technique of tissue culture, the child used its tail as a medium of expression when put to its mother's breast. Human tails containing vertebrae are rare, but the soft vermiform variety are not so uncommon as is usually thought. At a recent meeting of the Royal Anthropological Institute, when the specimen now added to the Hunterian Museum was exhibited, two medical men who took part in the discussion which followed the exhibition each said that they had seen several cases. As a rule those who possess such a structure take some pains to keep their knowledge to themselves. From time immemorial accounts have been brought to Europe of tailed races of men who had their existence in various and distant parts of the world. Usually they were said to exist in the Far East, the Philippine Islands being often alleged to be their home, or they were said to live in some inaccessible region of Central Africa. Lately excellent photographs of a tailed man were submitted to anatomists in London; the photographs are said to have been taken from a native of a small island at the southern end of the Philippine archipelago. These photographs have been accepted as genuine by competent anthropologists, and were regarded by them as rehabilitating the old myth that there were tailed families in the Philippines. It so happened that these photographs reached Dr. W. W. Keen, the Nestor of American surgeons, when he was writing a book on evolution for the better education of Daytonites. He naturally did not question the authenticity of the photographs, and included them in his book. Afterwards he discovered, as he has just explained to the readers of *Science*, that the photographs had been faked, the tail having been added by a clever photographer who apparently had some knowledge of the form assumed by a tail when it appears as an appendage to the human body. Dr. Keen, pursuing the straight, honest course of a lifetime which has now passed its eighty-ninth milestone, immediately stopped the sale of his book, and substituted for the faked photographs two authentic illustrations taken from medical literature. Dr. Keen may take some consolation from the fact that the photographer had succeeded in taking in several of our leading anatomists, but, mercifully for them, no use had been made of the photographs. The incident has a moral. In spiritualistic circles photographic evidence is relied on to prove the occurrence of phenomena, and is accepted implicitly as authentic evidence by leading spiritualists such as Sir Arthur Conan Doyle. The scientific man, when making his inquiries, has to guard against self-deception, but has seldom or never to think of wilful deception on the part of others. The highly successful man of science is therefore ill suited to take part in any inquiry where fraud, conscious or unconscious, has to be guarded against, and it is clear from the present instance that photographic evidence has to be accepted with the utmost caution.

## THOMAS ADDISON.

Our issue of June 26th last contained an account of a commemoration at Lanercost of Thomas Addison (1795-1860) by the Border Counties Branch of the British Medical Association, at which addresses were given by several authorities, including Sir William Hale-White, who has now published in the July number of the *Guy's Hospital Reports*[1] a full and interesting life of Addison, thus admirably completing his pious biographies of the three almost contemporary medical heroes, Bright, Hodgkin, and Addison, of the famous Borough hospital. His latest essay bears evidence of critical research into several points, such as the date of Addison's birth, which is shown to have been almost certainly 1795, not 1793 as stated in the *Dictionary of National Biography*, his entry at Guy's in 1817—not, as elsewhere stated, in 1820—and the question of priority of the recognition of true keloid, which Addison discovered for himself unconscious of a previous worker's observations. Intended for the legal profession, Thomas Addison went to Edinburgh as a medical student, and while there did not show any evidence of his future eminence, and was not, as has indeed been asserted, president of the Royal Medical Society. Coming to London, he was first house-surgeon to the Lock Hospital, then pupil and later physician, in

[1] Hale-White, W.: *Guy's Hosp. Reps.*, 1926, lxxvi, 253-278.

goes, the corpus luteum is to be regarded as the main factor in causing this growth.

It will be seen that the two sets of experiments taken together have not cleared up the point at issue—namely, why normal pregnancy terminates. Knaus's experiments seem to indicate that normal labour is terminated by spontaneous contraction of muscle fibres which have reached a certain size; but that during the last third of pregnancy in rabbits labour can be brought on by the administration of pituitrin. The earlier in the last third of pregnancy that labour is produced the larger must be the dose of pituitrin. We are by no means clear what importance is to be attached to the pituitary secretion during pregnancy as a means whereby the three portions of the uterus are kept simultaneously contracted. But Knaus's conclusions seem to be in conflict with those of Dixon and Marshall, for their statement is that during pregnancy the secretion coming from the corpus luteum neutralizes or inhibits the ovarian secretion, which otherwise activates the pituitary gland. In both papers the authors admit certain difficulties that can be raised against their conclusions; in neither do the explanations given of these difficulties appear quite satisfactory. Thus Dixon and Marshall say that their theory does not account for abortion; they seek to attribute abortion to some extraneous cause, such as disease, drugs, or fright. They have difficulty also with cases in which pregnancy has continued after removal of the ovaries in the later stages. For this they invoke a hypothetical "compensatory mechanism." Finally, it may be asked, what prolongs the existence of the corpus luteum, and how does this body inhibit the ovario-pituitary endocrine mechanism? Knaus has been met with the objection that loosening of the placenta is indispensable for delivery. To this he has a valid reply in the fact that, while the rabbit under normal conditions casts the ovum whole, foetuses and membranes together, when pituitary extract is used the young can be cast without their membranes and placentas. Therefore, he says, the actual process of birth is merely a matter of uterine contractions. Knaus meets the suggestion that the size of the foetus is an important factor in starting parturition by recalling that the duration of human pregnancy remains constant with great variations in the size of the foetus, or with enormous extension of the uterus in cases of twins or hydramnios.

From these papers we gather that in Knaus's view the contraction-producing power of the pituitary gland, so far as labour is concerned, is merely an accidental coincidence, while to Dixon and Marshall this power is the actual cause of the onset of labour pains. In either case we are a long way from an answer to the problem why labour begins at a certain point in pregnancy.

## THE ANTIRACHITIC VITAMIN.

It is twenty years since Hopkins first suggested that rickets might be due to a deficiency of some accessory food factor, but it was not until 1918 that Mellanby brought forward definite evidence that rickets could be produced by a deficiency of fat-soluble vitamins. The history of the advance of knowledge during the past eight years is a good example of how an apparently simple problem may turn out to be unexpectedly complex. Paton and his co-workers at once disputed Mellanby's conclusions, because they found that confinement in the dark could produce rickets on a diet which was fully adequate for animals enjoying an open-air life. The question whether rickets was due to deficient diet or to bad housing conditions was, of course, of immense practical importance.

The supporters of the deficiency hypothesis very soon found themselves in difficulties, because it was discovered that animals might develop rickets on diets containing an adequate quantity of the fat-soluble growth-promoting vitamin, and that whereas cod-liver oil would supply an adequate amount of growth-promoting vitamin and also cure rickets, yet green vegetables would produce the first effect but had a very uncertain curative effect on rickets. These difficulties were solved in a few years by two fundamental discoveries. The first discovery was that there were two fat-soluble vitamins—namely, vitamin A, the growth-promoting vitamin, and vitamin D, the antirachitic vitamin. The second discovery was that vitamin D could be produced by the exposure of food or by the exposure of an animal itself to sunlight or to any other source of ultra-violet light, whilst vitamin A could not be produced in this manner. Independent workers in America and England showed almost simultaneously that vitamin D could be produced by exposure of pure cholesterol to ultra-violet light, and researches are now proceeding with the aim of obtaining chemically pure vitamin D. For example, Rosenheim and Webster[1] have obtained from irradiated cholesterol a fraction, of which a daily dose of 1/100 mg. prevents rickets in rats.

Deficient diet and lack of sunlight have therefore both been proved to be causes of rickets. Both the administration of cod-liver oil, which is the richest known natural source of vitamin D, and also exposure to sunlight or ultra-violet light, have been proved to be certain cures or preventives of the disease. It is, however, extremely important to know the relative importance of dietary deficiency and lack of sunlight in the production of rickets in children. Luce[2] investigated the content of vitamins A and D in cow's milk, and concluded that the vitamin A content was due entirely to the nature of the cow's food. She found that the vitamin A content of milk was rich when the cow was fed on fresh green food, but was poor when the cow was on winter feed of cereals and roots, and that the vitamin A content was the same when the cow was exposed to sunlight as it was in a cow kept in a dark stall provided that the feeding was the same. Luce also concluded that the vitamin D content was chiefly dependent on the diet. Since these experiments were done it has been shown that the technique employed was not entirely satisfactory, because a lack of vitamin D can cause arrest of growth in young rats as well as occurrence of rickets, and hence to determine the vitamin A content accurately it is necessary to supply the test animal with vitamin D. This can easily be done by giving a vegetable oil that has been irradiated with ultra-violet light. This supplies vitamin D but no vitamin A. Chick and Roscoe[3] have repeated Luce's experiments with various refinements of technique, and their results confirm the conclusion that the vitamin A content of cow's milk is determined entirely by the nature of the cow's food, but prove, on the other hand, that the vitamin D content depends chiefly or entirely on the degree of exposure of the cow to sunlight. A cow kept in a dark stall yielded a milk poor in vitamin D, even when fed on fresh grass. The cow, therefore, does not manufacture any vitamin A, but simply passes into the milk such supplies as she has received in the food. On the other hand, the vitamin D in

[1] Rosenheim and Webster: *Biochem. Journ.*, 20, 537, 1926.
[2] Luce: Ibid., 18, 716, 1924.
[3] Chick and Roscoe: Ibid., 20, 632, 1926.

Medical Association, and was a conspicuous feature at Nottingham last July. On such occasions general practitioner and specialist get closer together. The set debate has become also during recent times a fairly regular item in the diary cards of the larger metropolitan societies. The main ingredients for success are a good topic, well chosen speakers, and a capable chairman; as an adjuvant the circulation beforehand of abstracts often helps to keep the proceedings in focus. At the end of last session a conference of the presidents of the various Sections of the Royal Society of Medicine decided to continue the holding of special discussions, and the Calendar of the Society for 1926-27 now gives a list of the subjects agreed upon; the dates will be settled later and announced in due course. One discussion, on blood-letting, is to be held by the whole Society, and ten others will be taken part in by the Sections immediately concerned. The subjects are as follows: Treatment of leprosy; treatment of chronic non-tuberculous infection of the lungs; uses and limitations of ultra-violet light therapy; value of recent methods of treatment in the late stages of ocular syphilis; relation of abnormalities of the blood pressure to diseases of the ear; trypanosomiasis in man and animals; diathermy; anti-toxin treatment of scarlet fever; anaesthetics in dental operations; oral manifestations of general disease in children. Here is a varied bill of fare, and some at least of these combined discussions at 1, Wimpole Street are likely to attract large audiences. Clinical debates, on the lines which have already proved so popular at 11, Chandos Street, will no doubt be held also during the forthcoming session of the Medical Society of London.

## HEALTH AND THE LEAGUE OF NATIONS ASSEMBLY.

THE report on the work of the Health Organization (writes our correspondent at Geneva) was almost the last item of business to be presented to the Assembly of the League of Nations before its hurried close on September 25th. Along with other matters of equal importance it was rushed through almost without discussion, the delegates having booked their sleeping-car accommodation. The Assembly was compressed within the allotted three weeks only by having meetings which lasted beyond midnight. The task of bringing health matters before the Assembly was entrusted to M. Fernandez y Medina, the delegate of Uruguay, who spoke with particular gratification of the very close relations which had been established during the last twelve months between the various health administrations of the Far East. He stated that the Japanese Government had done a great deal to facilitate the detailed study of its excellent health administration by a group of health officers appointed by the administrations of other Far Eastern countries. It was believed that the personal contact which had been made between Japan and the health administrations of British India, Australasia, China, the Soviet Republic, the Philippines, and the Dutch East Indies would make possible a valuable system of collaboration in future in the solution of common problems. A co-ordination committee, which included representatives of the permanent Health Committee of the League and of the health administration of Japan, was engaged upon the task of drawing up monographs containing an account of recent Japanese research, so that medical men in the West would have an opportunity of becoming acquainted with Japanese progress. Another enterprise had been an interchange of medical officers in the colonial services of Senegal, Gambia, Portuguese and French Guiana, the Ivory and Gold Coasts, Togoland, Nigeria, Dahomey, and Sierra Leone. In Latin America, again, health officers had been taking part in various interchanges. One Brazilian specialist had been afforded the opportunity of investigating in Japan, for a period of nine months, the parasitic diseases prevalent among the Japanese emigrants to Brazil. The Maharaja of Kapurthala, who represented India in the Assembly, laid stress on the part which the League could take in Asia in the struggle against plague, cholera, and other diseases, and on the value of the epidemiological intelligence bureau at Singapore, in whose work all the countries of the Far East are co-operating. The number of ports in telegraphic communication with the Singapore bureau is now above one hundred. The advisory committee of the Singapore bureau is presided over by the head of the health administration of British India, and the vice-chairmen represent the health administrations of French Indo-China, Japan, the Dutch East Indies, Siam, and China. The Health Committee of the League has already been enabled to initiate and co-ordinate investigations and research work bearing upon vaccination against malaria, the endemic distribution of that disease, and the measures to be taken to prevent the risk of an outbreak of epidemic pulmonary plague in Manchuria. The Assembly passed a resolution recording its gratification at the work accomplished, and referred certain proposals for enlargement of the work to the Health Committee for consideration.

## THE STEGOMYIA IN GIBRALTAR.

THE chief feature of the report on the health of Gibraltar in 1925[1] is an appendix of thirty-five pages containing an account of a mosquito campaign undertaken during the summer of that year. The common mosquito of the colony is the *Stegomyia fasciata*, and there are no anophelines. It is remembered that there were serious epidemics of yellow fever there in 1804, 1813, and 1828, and the authorities observe that the opening of the Panama Canal brings the colony into direct communication with countries where yellow fever has been endemic. It is, however, pointed out that the conditions now are very different from what they were a hundred years ago, for the United States administration of the canal zone may be relied on to prevent infection being transmitted by way of the canal. In any case, until rainwater underground tanks, of which there are a vast number connected with the houses in Gibraltar, are abolished completely, it seems hopeless to expect that the *Stegomyia* will cease to flourish. Some comfort may be obtained from the measures described in the report, but they seem scarcely necessary because of any fear of yellow fever. There are several annexes to this appendix; they contain much useful and practical information, and models for the framing of regulations and for propaganda purposes. The report itself shows no falling off in the high standard which has been maintained for many years, notwithstanding the overcrowded state of the occupied area and the exceptionally large percentage of families living in one-room dwellings. The population, apart from the garrison, is stationary, and has been so ever since an official record has been kept. In 1925 it was 17,288; but 1,500 British subjects and 5,000 Spaniards entered the colony daily from the neighbouring Spanish town, La Linea. The birth rate, which was 23 per 1,000 of the fixed civil population, has varied but little during the last ten years. The death rate—14.8 per 1,000—also shows little variation, except during the influenza years towards the end of and immediately after the war. The infantile mortality—83.3 per 1,000 births—is lower than in 1924, when it was 91.6 per 1,000. The death rate from acute infectious diseases was 0.62 per 1,000 of population, and from pulmonary tuberculosis 1.7 per 1,000. Influenza and pneumonia together accounted for 1,022 of the 1,262 cases of notifiable disease; but influenza, of which 900 cases were notified, was removed from the list

[1] *Annual Report on the Health of Gibraltar for the year 1925.* By Lieut.-Colonel W. C. Smales, D.S.O., R.A.M.C. Gibraltar: Garrison Library. (8vo, pp. ix + 79 and 35 pp. of appendix.)

all for eight years, to the General Dispensary in Hatton Garden, where he learnt dermatology from Bateman, the successor of the great Willan. Elected assistant physician to Guy's in 1824 and physician in 1837, he resigned in 1860, moving from Berkeley Square to Brighton, where the end came on June 29th of the same year. So outstanding was his position as a teacher that a deputation of students begged him to withdraw his resignation, but "he, poor man, knowing that he had a threatening disease of the brain, was compelled to persist." Addison, as portrayed by Sir William Hale-White, was a strong, dogmatic, and at the same time retiring man, and his position at Guy's—where his personal power was much superior to that ever wielded by Bright, and equal to, if not greater than, that of Sir Astley Cooper—contrasted with his standing in the outside world, both medical and lay. At the Royal College of Physicians, where he had to wait nineteen years before being made a Fellow, he was never censor, nor did he hold any lectureship or office. When he died neither the *British Medical Journal* nor the *Lancet* published an obituary notice. No Court appointment or honorary degrees were conferred on him; and, most surprising perhaps of all, the Royal Medical and Chirurgical Society refused to publish some of his papers, even after he had been its president (1849-50). It is hard, and indeed sad, to realize that none of his discoveries brought him fame during his life; these, such as the suprarenal and blood diseases called after him, the morbid anatomy of pneumonia, the clinical signs of a fatty liver, the mixed infective character of the lesions in pulmonary tuberculosis, and the description of vitiligoidea, later more generally known as xanthelasma and now as xanthoma, are carefully annotated by Sir William, who, in addition, has collected much information about Addison's family, and reproduces photographs of their houses and a facsimile of his handwriting.

## A POST-GRADUATE OPHTHALMIC COURSE.

Dr. A. Hill Griffith, formerly lecturer in ophthalmology at the Victoria University, Manchester, and ophthalmic surgeon to the Royal Infirmary and to the Royal Eye Hospital, has sent us notes of a post-graduate class which he started in 1886 and carried on for twenty-five years. The proposal was highly approved by the late Alderman P. Goldschmidt, chairman of the board of management of the Royal Eye Hospital; and Dr. David Little, Dr. Griffith's senior colleague, placed the patients of his large clinic at the disposal of the class. Twenty-five medical men attended the first course, which consisted of twelve weekly demonstrations. The board of management of the hospital fitted up a complete system of lights; and Dr. Griffith took care that each member of the class had a light and a patient to himself, so that loss of interest and consequent general conversation might be avoided. The object kept in view was to eliminate all that could be got from textbooks, and to confine the class strictly to practical matters. The post-graduates were asked first to use the ophthalmoscope mirror alone, at a distance of 2 ft., and to note the red fundus reflex and the presence or absence of any opacities. They were trained in guiding the mirror by throwing the light on the palm of the left hand, carrying the hand in front of the patient's eye, and then withdrawing it. Dr. Griffith then explained how several opacities situated on the antero-posterior axis of the eye could be brought into view by directing the patient to look down a little, the opacities in front of the centre of rotation then moving downwards, and those behind moving upwards; although what appeared to take place was that the opacity on the anterior capsule of the lens remained stationary, those in front of this point moving downwards and all behind appearing to move upwards. The reason given was that the red fundus reflex at the level of the pupil was taken as the point of observation. The class was instructed next in the use of the lens alone, focal illumination. Those who had a fair knowledge of the use both of mirror and lens were not taken through this elementary instruction, but were set at once to the examination of patients. When the post-graduate was sufficiently instructed he was shown cases of opacities in various situations, examples of persistent pupillary membrane, incipient senile cataract, lamellar cataract, persistent hyaloid artery, old-standing detachment of the retina, and, whenever possible, sarcoma of the choroid or glioma of the retina. Even if a man never got a proper view of the disc, said Dr. Griffith, he had learned a great deal, and was satisfied that he was getting "better and better every day." Dr. Griffith never showed those beautiful, highly finished, coloured drawings of the fundus; they were useless for the beginner. The student was next taught how to take the field of vision by means of his fingers or a piece of paper on the end of a pen, a well marked case of homonymous hemianopsia being used. A registering perimeter was never employed. Cases of bitemporal hemianopsia, central scotoma in retrobulbar neuritis, and central colour scotoma in tobacco amblyopia were then shown. The shadow test was demonstrated, and Dr. Griffith notes the difficulty he had with one man who always differed from him as to the direction of the shadow, until it was discovered that he was using a plane mirror. The next step was to test simple hypermetropia, myopia, and presbyopia, with a demonstration that subjective tests sufficed even for astigmatism with adults of average intelligence, and that only in children was a mydriatic necessary. Dr. Griffith sympathizes with those pupils who had difficulty in getting a proper view of the disc by the inverted image; but he thinks that the indirect method should be used as well as the direct in every case. The entries for the class on "The use of the ophthalmoscope and estimation of refraction" became so numerous that two classes had to be held each year. For many years also Dr. Griffith gave a summer course on "External diseases of the eye." Each patient was demonstrated before a semicircle of students. They were shown that redness of the eye might imply not merely conjunctivitis, but also iritis or corneal ulcer or a foreign body or some deeper affection; and that conjunctivitis itself might be due to chronic dacryocystitis. At each meeting one or more of the rarer diseases were shown in order to arrest the students' attention. Dr. Griffith notes that there was always one man in a class—he felt lucky if there was only one—who would rather talk and ask abstruse questions than try to follow directions. Generally he was an over-read man; the abstruse questions were put, apparently, to impress the teacher and the other members of the class. Dr. Griffith's method of dealing with this person was to tell him he would like to go into the matter fully with him—after the class. In the meanwhile he sat the man down at a lamp, if possible at a distance from the other students, and told him to report, after the class had gone, all that he could make out.

## SET DEBATES.

The medical symposium, or organized discussion of a single topic from various aspects, seems to be gaining favour. Concurrently the independent paper, followed by a few haphazard comments and compliments, is going rather out of fashion; though there will, of course, always be room for the individual record of new work and new ideas, as well as for the showing of good cases and specimens, which, while often wearisome to read about afterwards, are profitable to examine on the spot. This tendency towards prearranged joint discussions is, we think, a good one. It has been gathering strength for some years in the scientific Sections in the Annual Meetings of the British

# England and Wales.

### The Care of Welsh Cripples.

Schemes for the systematic care and cure of cripples have of late years been put into operation in one county or group of counties after another, and it was not likely that Wales would long bear the reproach of lagging behind, especially when there was such a shining example at its very doors as that afforded by Shropshire—the pioneer in the movement. Following on a lecture delivered by Sir Robert Jones in July last to the representatives of the authorities which are responsible for the care of cripples in Wales, a movement has been started under influential leadership to provide the necessary organization by the inauguration of a Welsh branch of the Central Committee for the Care of Cripples, having its headquarters at the Prince of Wales' Hospital, Cardiff. The secretary of this hospital, Mr. Gilbert D. Shepherd, points out the great importance of recognizing the fact that the county councils, county borough councils, local education and other authorities which are responsible for maternity and child welfare work are the proper bodies for instituting and maintaining the after-care clinics under the scheme. Sir John Lynn-Thomas has consented to act as honorary organizer, and Dame Agnes Hunt has agreed to render all assistance in her power in the organizing of the after-care clinics. As tuberculous cripples over the whole of Wales and Monmouthshire are already being dealt with by the Welsh National Memorial Association, it will only be necessary to provide for the needs of the non-tuberculous cases. This circumstance reduces the scope of the scheme, but nevertheless the benefits of open-air treatment for children are desirable for all and an open-air hospital is needed. This, it is felt, should be large enough to allow of cases being retained until their cure is complete or until efficient after-care is forthcoming. The needs of the adult cripple can be dealt with by the Prince of Wales' Hospital and by the Shropshire Orthopaedic Hospital. For the present it is considered that these hospitals—one of which, it is to be noted, is not in Wales—will suffice, but the question of the establishment of an open-air hospital in Wales will have to be dealt with ultimately. At present the most urgent task is the provision of the after-care clinics in suitable localities and of the trained surgical and nursing staff. The appeal, which we understand is being circulated in Wales, recapitulates the objects of the Central Committee for the Care of Cripples, and urges the desirability of co-operation with existing agencies, especially the Welsh National Memorial, and an advisory board is to be formed to settle matters of administration and sites for clinics, on which the Welsh Board of Health, medical officers of health, the consulting staff of the Prince of Wales' Hospital, and others will be represented. It is suggested that a lecture campaign on the care of cripples shall be carried on through Wales. The scheme starts with the advantage of the support of the Prince of Wales' Hospital at Cardiff and of its influential council and staff, and difficult as the present situation is, on account of the coal strike, we feel sure that the patriotism of the Welsh people will see to it that it is carried through.

### Lord Mayor Treloar Cripples' Hospital.

During the year ending March 31st, 1926, the Lord Mayor Treloar Cripples' Hospital at Alton extended its work to include general orthopaedic cases, which had previously only been admitted exceptionally. One observation ward and two ordinary wards, containing in all forty beds, have now been set apart for non-tuberculous crippled children. In September, 1925, a new massage and medical gymnastic department was opened. Other extensions during the year include the enlargement of the nurses' home at a cost of £10,125, and the completion of the new isolation hospital. The whole hospital now contains 350 beds, and there is accommodation for the technical training of crippled lads from 14 to 18 in the college. The income during the year showed a "record" increase in annual subscriptions, and in spite of the expense of the new light department the weekly cost per patient decreased by 1s. 3d., as compared with the previous year. In his annual report the medical superintendent, Sir Henry Gauvain, refers to the treatment of lupus vulgaris by intensive local light, associated with general light baths, which he has found most successful, though it is lengthy, difficult, and costly. Artificial light proved effective also in open tuberculous wounds, sinuses, and multiple lesions.

### Voluntary Hospitals in Sheffield.

A report of the work in 1925 of the voluntary hospitals in Sheffield has been issued by the City of Sheffield Local Voluntary Hospitals Committee, which was formed in 1921; its previous reports were incorporated in the publications of the Sheffield Voluntary Hospitals Advisory Council. Tables are provided of the income and expenditure under various heads of the Sheffield Royal Infirmary, the Sheffield Royal Hospital, the Jessop Hospital for Women, and the Children's Hospital, during 1925, and the totals are compared with those of the four previous years. Another table, by means of an aggregate balance sheet for each hospital in 1925, shows that a surplus was realized in each case, and supports the committee's recommendation of the maintenance of the voluntary system in hospital administration at all costs. Statistical tables are included of the number of patients treated, the work of the Sheffield Hospitals Council, and miscellaneous information about the number of patients contributing towards their maintenance, admitted free, and supporting the penny-in-the-pound scheme. It is stated that extension of the work of the committee is contemplated to include the surrounding areas from which the Sheffield hospitals draw a large percentage of their patients, and that negotiations are in progress with the boards of the county and cottage hospitals and the general practitioners concerned, with the view of utilizing the available beds in the district to their fullest extent.

### Care of Mentally Defective Children in Glamorgan.

A proposal to purchase Hensol Castle, Glamorganshire, for the treatment of mentally defective children has been approved by the Glamorganshire Education Committee. It is intended to provide in the whole scheme a residential school at Hensol Castle for the care of mental defectives, with provision for special classes in existing schools or schools in the county, and special day schools in the more thickly populated areas for backward children. In this way the residential school will be kept for children who cannot benefit from education elsewhere. The cost of the purchase is estimated at between £30,000 and £40,000; the estate covers 1,082 acres, of which 500 would be used for the purpose of a colony in connexion with the residential school. After the children have been educated in the residential school they will subsequently form the population of the colony, where suitable occupation can be provided for them, and their parents will be able to visit them from time to time. At present such children are being sent so far away as Lancashire, Yorkshire, and London.

# Scotland.

### Scottish Memorial to David Livingstone.

David Livingstone was born in 1813, in a house on the banks of the Clyde, at Blantyre, near Glasgow. He was admitted a licentiate of the Faculty of Physicians and Surgeons of Glasgow in 1840. His early home has now fallen into considerable disrepair, and is threatened with demolition. An influential committee has therefore been formed to purchase the house and grounds, and to restore them as a national memorial in which personal relics of Livingstone may be preserved, as has been possible in the case of Scott and Burns. An appeal is now issued for £12,000, of which it is believed £7,000 will be required for securing the property, making extensive repairs and internal adjustments, and enclosing and laying out the

of notifiable diseases in November of the year under review. There was no other outbreak of disease of any importance, but seventeen persons were subjected to anti-rabic treatment on account of bites from dogs or cats suffering from, or suspected of, rabies. The report, as a whole, is well prepared and arranged, and records, as in previous years, the facts connected with various infectious diseases, with general sanitary work, and the activities of institutions for maternity and child welfare and care of the tuberculous. There are also several statistical tables, charts, and a sanitary map of Gibraltar.

## ANTIMALARIAL MEASURES.

Of the various enterprises usefully carried on under the auspices of the Rockefeller Foundation, none excels in practical value the work of the International Health Board in the study and control of malaria. In Palestine during 1924, as narrated in the annual report of the Foundation for that year, surveys were made which show that while the mosquito *Anopheles bifurcatus*, breeding in wells and cisterns, is the carrier of malaria in towns, the principal vector in rural areas is *Anopheles elutus*. In the towns much benefit has been derived from oiling the wells and cisterns: in the country districts hopes are fixed on prospective legislation requiring the tenants of land to check the breeding of mosquitos. Palestine, it is suggested, at the present time needs management of its water supplies rather than general drainage. Other regions, on the other hand, have been greatly the better for the draining of superfluous water. In the malarious parts of Porto Rico, for example, the disease is worst near cane fields where drainage is neglected: Fajardo, where drainage is efficient, appears to be free of infection. Promising results have been got in Brazil by antilarval measures alone without quininization of the inhabitants, and in Nicaragua an important gold-mine, which had been closed for some years owing to the high malaria rate among its labourers, has, after drainage, been reopened. Officers of the International Board, in response to an invitation received from the Government of Italy, made a general survey of the malaria position in that country. Control, especially in the South of Italy, has hitherto been largely confined to the free distribution of quinine, but now the Government provides in addition screened houses for its own employees, and offers premiums to private employers who follow its example. In order to throw light on the malaria problems of the southern United States, a special investigation has been made at Leesburg in Georgia. Of the three indigenous Georgian anophelines, it has been ascertained that *Anopheles quadrimaculatus* is for practical purposes the sole vector of malaria. It frequents level lands and impounded water. The imago when at rest does not assume the traditional anopheline posture, with its body elevated at an angle of 45 degrees: it adopts, on the contrary, a flat or culicine attitude. Its range of flight was observed to be small; few specimens travelled a mile from their breeding place. The larvae of Georgian mosquitos during the winter months, when the temperature of the water ranges from 39° to 50°, spend most of their time at the bottom of pools. These studies and inquiries, made in various lands and under various conditions, exhibit the diverse character of the questions involved in the repression of malaria. The methods which help one district may be inapplicable to another. The habits of one mosquito may protect it from assaults which are lethal to allied species. Thus a Georgian larva at the bottom of the water is beyond the usual range of surface oiling. Without patient research there can be no clear understanding of the several problems and no sure guidance as to appropriate action. The report of the Rockefeller Foundation is at once a stimulus and a caution to all engaged in antimalarial campaigns.

## AUTOPSY OF A "FAMILIAR."

In a leading article on "A Harveian tercentenary," on August 14th last, we remarked that William Harvey in 1634 was appointed to examine four women known as the Lancashire witches. On September 18th we published an interesting letter from Dr. H. A. Clowes, in which the story of Harvey's association with Sergeant-Surgeon Clowes and others in the examination of the women was told in greater detail. This letter was made the subject of a humorous little leading article on "Harvey and the witches" in the *Times* of September 21st. This brought a letter from Dr. Letitia Fairfield, published in the *Times* two days later, quoting an account of another investigation into alleged sorcery which was made by Harvey. The story is told in Professor Notestein's *History of Witchcraft in England*, and is based on a letter in the *Gentleman's Magazine*, 1832, Part I, 405-410. It appears that about 1685 a justice of the peace in south-west England, whose name is unknown, wrote a letter in which he said that he once asked Harvey his opinion on witchcraft. Harvey replied that he believed there was no such thing, and related a story of a visit he made to a reputed witch when he was at Newmarket with King Charles I. The woman lived in a lonely house on the borders of the heath. Harvey told her that he was a wizard, and had come to converse with her on their common trade. The woman believed him, because, as Harvey said, "You know I have a very magicall face." Harvey asked to see the witch's familiar; whereupon the woman brought out a dish of milk, made a chuckling noise, and a toad came out from under a chest and drank some of the milk. The witch was persuaded to go out to get some ale half a mile away; and while she was absent Harvey cut up the toad and found the milk inside. He came to the conclusion that the animal "no ways differed from other toades," but that the old woman, having tamed it, had come to believe it a spirit and her familiar. On her return the old woman "flew like a Tigris" at Harvey, and would not be pacified with money; so that Harvey was obliged to tell her that he was the King's physician, sent to discover if she were a witch, and in case she were to have her apprehended. Dr. Fairfield thinks that this is "the only scientific examination on record of that unique and mysterious feature of English witchcraft, the 'domestic familiar'"; and she agrees with Professor Notestein that the episode may have influenced Harvey in favour of the Lancashire women.

## MEDICAL RESEARCH COUNCIL.

Orders of the Committee of Privy Council have been issued by which Dr. Charles J. Martin, F.R.S. (Director of the Lister Institute and Professor of Experimental Pathology in the University of London), and Sir Frederick Gowland Hopkins, D.Sc., M.B., F.R.S. (Professor of Biochemistry in the University of Cambridge), are appointed members of the Medical Research Council into the vacancies caused respectively by the death of the late Lieut.-General Sir William Leishman, F.R.S., and by the retirement of Professor T. R. Elliott, F.R.S.

The Royal Society of Medicine will hold a reception at 1, Wimpole Street, W.1, on Monday, October 18th. At 8.30 p.m. Fellows and their guests will be received by the President, Sir James Berry, and Lady Berry. At 9.30 Sir Arthur Keith, M.D., F.R.S., will give a short address entitled "John Bull: a study in anthropology," with lantern illustrations. The library will be open, and various objects of interest will be exhibited. Music and light refreshments will be provided.

in the necessaries of life, medical benefit as an aid to early diagnosis, after-care committees, contributions for patients, and graduated work as an adjunct to treatment.

### TUBERCULOSIS IN BELFAST.

Reporting on the work during 1925 of the tuberculosis department of the county borough of Belfast, Dr. Andrew Trimble, the chief tuberculosis officer, states that there has been a reduction of the death rate due to pulmonary tuberculosis in Belfast of 30 per cent. in the last ten years, 55 in the last twenty years, and 60 in the last thirty years. He refers to the vexed question of the effects of tuberculosis on pregnancy and vice versa, and concludes that this disease cannot be convicted of contributing in any marked degree to interruption of the normal course of pregnancy. He finds that if a tuberculous woman is not in an advanced stage of the disease, or acutely ill, is well nourished and living in hygienic surroundings, pregnancy and child-bearing have little apparent effect on the clinical course. On the other hand, in advanced stages of the disease, or when the patient has an acute type of tuberculosis, pregnancy may be attended with very serious results. He emphasizes the value of $x$ rays in the diagnosis and prognosis of pulmonary and osseous tuberculosis. He has frequently found that, even when a sinus has appeared to be firmly healed for many months, or even years, the $x$-ray film may still show much rarefaction of the diseased bone, indicating the need for further rest and treatment. With regard to the diagnostic importance of the albumin test in sputum, he states that out of 850 sputums examined for albumin or albumose, only 14 were found to contain tubercle bacilli and no albumen, while 127 which contained tubercle bacilli gave also a positive test for albumin. He adds that even if a negative albumin reaction is of uncertain value as indicating the absence of pulmonary tuberculosis, a positive reaction provides a valuable indication for the repeated examination of the sputum for tubercle bacilli. Dr. Trimble gives a short account of the visit of the medical commission from Belfast last year to Paris, Geneva, Frankfurt, Hamburg, and Copenhagen to investigate Continental methods of treating tuberculosis. We referred to the report of this commission on August 8th, 1925 (p. 270). Dr. Trimble also gives a report on the work of the Belfast committee which has been investigating the value of sanocrysin, and concludes that, while the method seems to represent a distinct therapeutical advance in definitely selected cases, yet further observation for at least a year of the results obtained will be necessary in order to estimate the degree of permanence.

### FERMANAGH ASYLUM, TYRONE.

The resident medical superintendent (Dr. Patrick) of Tyrone and Fermanagh Asylum in the course of his annual report states that on January 1st, 1925, there were 429 males and 347 females in the institution; 95 males and 74 females were admitted during the year, and 97 males and 76 females discharged. There appeared to be little difference in the forms of mental disorder and their relative proportions during recent years. A considerable number of young persons who were restless and troublesome on admission entered the institution. The number of cases of mania was 42, and of melancholia 71. As in previous years, a considerable number of the newly admitted patients were in poor health, suffering from malnutrition from one cause or another, which necessitated hospital treatment. In 73 cases a marked hereditary tendency was present. Among males there were only two cases in which over-indulgence in alcohol was given as the principal, and in 5 it appeared as a contributory cause. This suggests that the inhabitants of Tyrone and Fermanagh are very temperate, or that alcohol is not so potent a cause in the production of insanity as has been urged by some reformers. The view that over-indulgence is to be regarded more as a sign of nervous instability than as a cause for mental breakdown seems to Dr. Patrick to be the more correct. In any case, he adds, the reforms so vehemently advocated would not materially lessen the number of admissions to that institution, where the experience of a considerable number of years was contrary to the belief that alcohol was one of the most powerful of the causes of insanity.

# Correspondence.

## CHOLECYSTOGRAPHY.

SIR,—The opinion expressed at Nottingham that cholecystography should become a standard method of investigation is not only the opinion of Professor Graham, who devised the test, but of the leading radiologists in America, Germany, France, and this country, who have tested and proved its value in several thousands of cases.

At the Queen's and St. Chad's Hospitals, Birmingham, we have made over 120 cholecystographic investigations, and the diagnoses given have proved correct at operation in over 90 per cent. of the cases.

In a very large proportion of the patients not the slightest toxic reaction was experienced. A few patients have complained of nausea, sickness, and headache. In only ten patients has the reaction been of the severity of the "bilious attacks" previously experienced by the patients, and only two in our series had the symptoms of severe surgical shock. The skin of one of these was of a pale yellow tint before the injection; throughout the day after receiving the injection the skin became deeper in colour. Her gall bladder was normal in shape, position, and density. It filled and emptied in the normal time.

A number of patients have had very marked jaundice due to complete obstruction of the common bile duct; none of these had a reaction which was noticeable. Age apparently does not influence reaction, as many of our patients were over 60 years of age. The type of patient who gets a severe reaction is the patient who has had what we believe to be a toxic haemolytic jaundice, as the gall bladders of such patients fill and empty normally.

The dye used in all these tests is sodium tetraiodophenolphthalein made by the British Drug Houses and Kodak, Limited. The technique advised by Graham is strictly adhered to on all occasions. The percentage of accurate diagnoses and the percentage of patients who had the reaction in our series are very similar to those recorded by the Mayo Clinic and other large clinics in America and Germany.

Naturally we shall all welcome a dye which is absolutely non-toxic. In the meantime we, personally, will be reluctant to abandon a method of investigation which is proving of immense use in the diagnosis of diseases of the bile passages, at any rate until we have full details of the single fatal case recorded so briefly by Mr. Raison in your issue of September 18th (p. 542).—We are, etc.,

JAMES F. BRAILSFORD.
A. W. NUTHALL.

Birmingham, Sept. 24th.

## THE ABDOMINAL CRISES OF PERNICIOUS ANAEMIA.

SIR,—Mr. Hamilton Bailey's article in your issue of September 25th (p. 554) illustrates very forcibly the truth that now and again severe abdominal pain may find its interpretation in the existence of pernicious anaemia. The lesson has been read before, but as such experiences appear to be unusual its restatement is more than justified.

In one of his well known studies of pernicious anaemia Dr. William Hunter speaks both of "acute gastric discomfort" and of "attacks of tearing, griping pain in the intestine," and in a case recorded by Dr. J. George Taylor the description runs of abdominal pain which "came on rather suddenly, lasted for several hours, and appeared to cause intense agony."

Some years ago I was asked to see a patient who was said to be the victim of recurring attacks of abdominal pain for which no explanation had been found, even though under their provocation the abdomen had been opened by a very experienced surgeon. The case was undoubtedly one of pernicious anaemia, as established in the end by *post-mortem* examination. A point of particular interest in this experience is that the diagnosis was very near at hand when once an ophthalmoscopic examination was made. There, plainly enough, were retinal haemorrhages, and necessarily a blood examination followed.

grounds, while an endowment of at least £5,000 is considered necessary for maintenance. In connexion with this appeal an illustrated pamphlet has been issued, which may be obtained from the organizing secretary, Mr. J. G. Harley, 36, Chalmers Street, Edinburgh. Subscriptions should be sent to Mr. J. Macgregor Hart, the honorary treasurer, 142, St. Vincent Street, Glasgow. Livingstone died at Chitambo on May 1st, 1873. His remains were brought home and the burial in Westminster Abbey was on April 18th, 1874.

### Glasgow Slum Clearance.

A Board of Health inquiry has been sitting during the past week to investigate the question of slum areas which the Glasgow Corporation propose to clear, and also to investigate an improved housing scheme which has been approved by the corporation. The corporation desires to clear away some 1,000 houses and to erect accommodation, chiefly of the nature of tenements, in other parts of the city. The previous slum clearance scheme introduced in 1923 involved 2,000 slum dwellings, and is now almost complete. Mr. Archibald Crawford, K.C., on behalf of the corporation, explained that the scheme related to five of the public health areas of the city, in some instances clearance of a considerable congested district, and in other cases of isolated houses here and there. The medical officer had chosen what he regarded as the worst dwellings to be cleared out. The number of persons to be displaced was 4,532, and this scheme was a second instalment of a series of slum clearances which the city had in view. Within recent years the corporation had determined upon slum clearances which would involve about 50,000 persons, or between 13,000 and 14,000 houses. Many of the properties were houses of a past age, in a dilapidated state; they had a very unhealthy effect, and were productive of early death, particularly among children. Dr. A. S. M. McGregor, medical officer of health for the city of Glasgow, giving evidence as to conditions prevailing in the slum areas, said that for some years prior to 1909 a survey had been made of the city, from the slum area point of view, and at that time 13,000 houses had been placed in the category of insanitary dwellings. Examples were given by Dr. McGregor to show the crowded character of the slum areas in the Water Street district of the northern area; 633 inhabitants lived in 48 houses in an area of 1.5 acre; this meant 433 persons to the acre, as compared with 57 for the city generally. The death rate was 25 per 1,000, compared with the general city death rate of 14; and the infantile mortality was 148, as compared with 107 for the city. In an area about Adelphi and Crown Streets the population was 943 to the acre, the death rate 42, and infantile mortality very high; and the death rate from respiratory causes was 10.1, as compared with 2.7 for the city generally. In contrast to this, 271 new houses were to be erected at Germiston, in the north-eastern district, with a density of 17 houses to the acre; in the east end at Duke Street 130, with a density of 28 houses per acre; 180 new houses at McNeil Street, with a density of 33.5 houses to the acre; and 288 new houses at Govanhill, with a density of 31.3 houses to the acre. All these houses would be well lighted and ventilated, and would consist of two and three apartments. Mr. A. C. M'Millian, city chamberlain, in giving evidence, said that the outlay required further for the slum clearance involved an expenditure of about £500,000, or a loss of £17,000 for the next sixty years; half of this sum, however, was to be paid by the Government, so that £8,500 per annum would be the share of the Glasgow corporation. Mr. John Bryce, director of housing, spoke of the new schemes. The sites, he said, were within easy reach of the places where the persons to be displaced were now living. The reason for differences in density of population was that in the older districts streets were already formed, while in districts now to be laid out for the first time, like Germiston, the streets were to be planned as seemed best, and this was being done in a generous manner, while good health conditions would be kept in view. In forming plans the principle now followed was to build 50 per cent. of two-room houses and 50 per cent. of three-room apartment houses.

### Scottish Asylums' Pathological Scheme.

The twenty-ninth annual report of the Board of the Scottish Asylums' Pathological Scheme contains an account by the pathologist, Dr. F. E. Reynolds, of his research and routine work during 1925. In collaboration with Dr. Logan Turner, Dr. Reynolds has made a special study of the paths of infection to the brain, meninges, and venous blood sinuses from neighbouring peripheral foci of inflammation. Two reports have been published in the *Journal of Laryngology and Otology* for February and July of the present year; it is proposed to publish a third report towards the end of the year. In addition to routine pathological investigations performed in the laboratory in Edinburgh, visits are being paid to various mental hospitals with a view to assisting pathological investigations, and a course of demonstrations and lectures for the diploma in psychiatry was given in the first quarter of 1926. Post-graduate teaching in pathology has also been carried on, and lectures and demonstrations have been delivered to undergraduates studying pathology in Edinburgh. A collection is being made of pathological and microscopical preparations for teaching purposes, and these are available for use by medical superintendents of the mental hospitals contributing to the scheme. Dr. Reynolds is anxious to obtain material for demonstrating degenerative changes in the central nervous system, especially in cases of tabes dorsalis, disseminated sclerosis, and hemiplegia.

### Caledonian Medical Society.

The annual meeting of the Caledonian Medical Society was held at Storrs Hall Hotel, Windermere, on September 24th. The president, Dr. W. E. Henderson, medical officer of health for Westmorland, delivered an address on "The historical and literary associations of Westmorland" to a large audience. Sir Robert Jones, Bt., K.B.E., F.R.C.S., and Sir Samuel Scott, Bt., High Sheriff of Westmorland, were elected honorary members. The annual dinner was held in the evening. The 1927 meeting will take place in Dundee under the presidency of Dr. Angus McGillivray, and in 1928 the society will celebrate its jubilee at Edinburgh under the joint presidency of its founders, Dr. S. Rutherford Macphail and Dr. W. MacNaughton.

## Ireland.

### Treatment of Tuberculosis in the Free State.

Important questions relating to public health were discussed at the summer meeting of the National Association of Insurance Committees. It was stated that on the question of the treatment by Insurance Committees of tuberculous insured persons in excess of the number contracted for under agreements with local authorities, a deputation was received by Dr. Stephenson, chief medical officer of the Department of Local Government and Public Health. The deputation pointed out that the insufficiency of the sanatorium benefit fund was largely caused by widespread non-compliance with the Act, and that it was the duty of the Government to make arrangements for meeting its moral obligations to the insured persons who had complied with the Act. Dr. Stephenson admitted that the position created a hardship for insured contributors, and said that his department was concerned with safeguarding the ratepayers. If the deputation could put their views in the form of a memorandum he would place it before the Minister. It was suggested that a letter of protest should be sent to the Commission, and that it should be requested to negotiate with the Government with a view to ensuring that adequate funds were made available for the treatment of sanatorium applicants throughout the Saorstat. Dr. King explained the report of the medical committee for Dublin County, which was adopted. It dealt with a more rigid form of notification and disinfection, power to compel removals of tuberculous patients, suitable homes to segregate advanced patients, medical inspection of school children, inquiry into milk supply, overcrowded dwellings, profiteering

inject more than 5 c.cm. of the 40 per cent. solution at a time, although as much as 10 c.cm. of the weaker dilution may be given initially, if it be thought desirable. It is an advantage to make the injections in a sitting position, owing to the temporary giddiness which often follows. I never saw a recurrence during nine months.

As Dr. Douthwaite points out, the disability produced by varicose veins is so enormous that any method which can be employed safely and without interfering with the occupation of the sufferer is entitled to consideration.—I am, etc.,

W. S. C. Copeman, M.B., M.R.C.P.

London, W., Sept. 25th.

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Sir,—With reference to my article in the Journal of September 25th (p. 554) may I encroach on your space to answer certain recurring questions in the numerous letters I have received?

1. The object of applying the tourniquet is to keep the veins distended even when the leg is raised rather than to delay the passage of the quinine-urethane solution into the general circulation. Alternatively the patient may sit on the edge of the couch with the legs hanging down; veins on the posterior aspect are then, however, inaccessible. Without the aid of a tourniquet for dealing with such sites the patient must stand on a table, or else the operator must grovel on the floor.

2. It is, as a rule, unnecessary to inject veins higher than the middle of the thigh, because above this they rarely produce symptoms. I have, however, been as high as the saphenous opening without untoward result. Herein lies the great advantage of the quinine solution over the salicylate injection used by other workers. I have seen a thrombosis follow sodium salicylate treatment, which ascended with alarming rapidity, and had to be controlled by two weeks' immobilization. This does not occur with quinine.

3. The persistent ulcers of faulty salicylate injections do not occur if quinine solution enters the subcutaneous tissue.

4. Rest in bed is not required after artificial thrombosis, because it is not associated with infection and the clot is, therefore, not friable.

5. The injections should obviously be made from below upwards to prevent interference with the next puncture by blood.

—I am, etc.,

Worthing, Sept. 27th. A. H. Douthwaite, M.D.Lond.

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Sir,—The article by Dr. A. H. Douthwaite on the treatment of varicose veins by injection suggests the cure of a very common ailment by means well within the scope of the general practitioner, and looks on the face of it well worth his serious attention.

May I point out one simple omission from his note, which may or may not be of importance? Dr. Douthwaite, after describing his process, makes no mention of the length of time the tourniquet should remain in position after the injections have been given, and as thrombosis is the natural cure it might be helpful to know how long the tourniquet should remain above the injected parts.—I am, etc.,

Benjamin Wainman, M.R.C.S.Eng.,

Leeds, Sept. 27th. L.R.C.P.Lond.

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## THE PERIOD OF INFECTIVITY OF WHOOPING-COUGH.

Sir,—Two years' experience as resident medical superintendent at a large hospital for children in London encourages me to answer Dr. Devereux's question (September 18th, p. 542).

If a child has had whooping-cough for six weeks it is non-infectious. The first "whoop" does not occur for several days after the onset of the disease, and it is during this time that infection of others most often occurs. There is no question whatever that many patients will occasionally "whoop" for months and, rarely, years after an attack, but in this stage they are clinically non-infectious.

I doubt if the bacteriological evidence is sufficiently strong to pronounce dogmatically on the subject, but experience suggests that six weeks from the onset is probably erring on the side of over-caution, and is hence a perfectly safe time limit to adopt.—I am, etc.,

London, Sept. 23rd. Eric I. Lloyd.

## MINER'S NYSTAGMUS.

Sir,—I have read with interest Dr. Percival's letter in the Journal of July 31st (p. 224), which has just reached me. Though I quite agree with him that light has very little to do with the causation of miner's nystagmus, I must take exception to his statement that twenty-five years ago the percentage of nystagmus cases at the South Moor Colliery was notoriously high. I was surgeon to that particular colliery both before and after the time he mentions, and though I have not the actual figures before me, I can say with confidence that, of cases receiving compensation, or being "off work," the percentage due to nystagmus was practically negligible.

I am particularly interested in nystagmus, as I was resident at the Sheffield General Infirmary, and working chiefly under the late Mr. Simeon Snell at the time when he brought forward the theory that it was nearly entirely the position of the hewer when at work that caused the disease, which theory was combated by, I believe, Dr. Court of Barnsley.

I have in my possession a pamphlet in book form by Mr. Snell, which to my mind, taken together with observations made on patients attending the eye department of the Sheffield Infirmary at that time, proves position at work and consequent strain of the extrinsic muscles of the eyeball to be the chief, if not the only, outside factor in the causation of the disease.—I am, etc.,

R. E. Ingram-Johnson.

Banting, Federated Malay States, Aug. 27th.

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## CONTINENTAL MEDICAL GRADUATES.

Sir,—So far as I have been able to ascertain no attempt has been made up to the present time to form a roll or association of practitioners in the United Kingdom who hold the M.D. degree of a Continental university.

Apart from the associations of Brussels and Lausanne medical graduates, which between them number nearly 450, there are about 220 graduates of other universities, so far as my present researches have revealed. The numbers are made up approximately as under: Malta 40, Germany 56, Italy 38, Switzerland 31, Holland 22, France 21, Greece 4, others 9. These men, scattered far and wide, for the most part out of touch with each other, represent such famous universities as Freiburg, Vienna, Heidelberg, Naples, Rome, Padua, Bologna, Florence, Berne, Zürich, Geneva, Louvain, Ghent, Liége, and Paris, and contain some of the most eminent men in the profession.

Beyond the many advantages which would accrue to the graduates themselves from the formation of an association and a roll, which could be done for a very small initial subscription, there would be advantages and greater facilities arising for the rest of the profession, as, for example, information could be made more readily available with regard to post-graduate study in foreign clinics, conditions abroad, etc.

I should be very glad to hear from any medical practitioners holding Continental doctorates in medicine interested in the formation of such a roll and association, with a view to holding a meeting at an early date, and I should myself be only too glad to place at their disposal the MSS. roll which I have at present compiled.—I am, etc.,

Charles A. H. Franklin, M.D.Laus.,

Bickley, Kent, Sept. 25th. M.B., B.S.Lond.

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## POST-GRADUATE COURSES IN CANADA.

Sir,—In a recent issue of the British Medical Journal you note the fact that post-graduate courses lasting about one month have been given this year at the McGill University Medical College at Montreal. The tone of the note led me to believe that you were somewhat surprised as well as gratified at the fact.

I felt that you would be interested to know that such courses, although of shorter duration, have been given at other Canadian medical schools before this year: notably at the Dalhousie University Medical School at Halifax. I believe I am correct in stating that these were first introduced in 1922 with a view to benefiting the general practitioner in the nearby towns and country who felt he could

Mr. Hamilton Bailey usefully points out that the chance of mistaking the gastric crises of tabes dorsalis for an acute abdomen has been reduced to a minimum by routine examination of the pupils and the tendon jerks. Equally, let routine practice extend to the examination of the fundus oculi, and the confusion against which he now warns us would be in the highest degree improbable, for few indeed are the cases in which pernicious anaemia is not marked by the presence of retinal haemorrhages. Mr. Bailey tells us of one patient operated on for "perforated gastric ulcer," and of another in whom "a diagnosis of gall-stone colic was made." Yet the true interpretation in each case was pernicious anaemia. Personally I should entertain a very strong suspicion that the ophthalmoscope would have avoided conclusions which led to the operating theatre in the one instance and to its very threshold in the other.—I am, etc.,

London, W.1, Sept. 26th. C. O. Hawthorne.

## GOITRE IN CHILDHOOD.

Sir,—In your issue of September 25th (p. 577) Dr. Milligan states: "The theory put forward by Dr. Turton, that excess of lime has something to do with goitre prevalence, may be correct, and Sir James Berry (British Medical Journal of December 5th, 1925, p. 1060) has supported this view . . ." To state it thus is putting the cart before the horse, and I desire, Sir, to disclaim, for my own part, any priority for the view which Dr. Milligan attributes to me. The reverse order is the correct one, but the statement of Dr. Milligan is not quite correct. If he will turn to the *Lancet* (February 6th, 1926, p. 269) he will find that Sir James Berry, in his lucid article on "Some clinical aspects of simple goitre with remarks on its causation," actually said:

> "To my mind, there is abundant evidence that the cause of endemic goitre is to be found in drinking water, and though I fully admit that the actual nature of the poison is not definitely proved, I am inclined to think that in the minute particles of inorganic mineral matter (probably calcareous), *suspended* in the water, we find, even if not the actual poison, at any rate an essential accompanying factor."

And further, in his concluding remarks, he said:

> "There is much evidence that practically all waters which produce goitre contain frequently, although not necessarily at all times and seasons, mineral matter in suspension, usually in an extremely fine state of subdivision."

That is very different from attributing the goitre-producing properties of a water to those mineral salts in solution which constitute either permanent or temporary hardness. In no part of his article does Sir James attribute the cause of goitre to hardness of water supplies. Calcium, whether present as carbonate or sulphate, is not the only substance which makes waters hard. Magnesia and iron contribute, and neither of these has been implicated either by Sir James Berry or myself, nor do I see in his article any impeachment of calcium sulphate.

Conclusions drawn as to the hardness of water supplies and the percentage incidence of goitre are faulty if no account be taken of these facts, though Dr. Milligan falls into the error of attributing to us the view that it is the hardness of a water which determines the amount of goitre.

The water supply of the Heanor Urban District is, at its source, clear and sparkling. It is softened by Clark's process, and at the consumer's end the water is frequently turbid, the turbidity varying from a slight milkiness to occasionally resembling a bismuth mixture. This turbidity is due to the presence of particles of calcium carbonate, in a very fine state of subdivision. After softening the water is run into settling tanks and carbonated. A portion of the softened and carbonated water is filtered. At the present time there are not nearly enough filters to deal with the total volume of water consumed.

The latest analysis of the raw water shows that the temporary hardness is 18.16, and the permanent 13.42. The appearance in the 2-foot tube was clear and bluish. After softening and carbonating the temporary hardness was reduced to 8.15 and the permanent to 9.71, and after softening and filtering the respective hardnesses were 2.16 and 8.14. The total hardness was thus 10.3, but the results of analysis showed that in the softened and filtered water calcium carbonate amounted to 2.10, calcium hydrate to 1.11, and magnesium carbonate to 4.6 parts per 100,000. In appearance the softened water was turbid and opaque by reason of the presence of white suspended matter consisting mainly of $CaCO_3$. The appearance of the softened and carbonated water was turbid and yellowish, whilst the appearance of the filtered water was clear.

Yet this district is one which has been a seat of endemic goitre for many years, but although the disease exists to a considerable extent at the present day, its endemicity is not so severe as in former years, prior to the introduction of the present water supply. I have published elsewhere statistics of goitre, both in children and adults.[1] Goitre is still endemic in this district, and in all probability the reason for its existence is the present state of the water. A typical example of a well water used for drinking purposes in this district in 1906 revealed the following: Total solids 140.6, free ammonia 0.045, albuminoid ammonia 0.050, chlorine 19.8, nitrogen as nitrates and nitrites 1.0 per 100,000 parts. This is a grossly polluted drinking water. There are no records available to show whether at any time, though it is probable enough, the well waters used for drinking were turbid from inorganic matter in suspension. They were in all cases surface wells, sometimes in clay, more often in a calcareous sandstone, locally termed "ratchel."

I agree entirely with Dr. Milligan that the whole question of the etiology of endemic goitre needs further inquiry; it appears reasonably certain that the condition is by no means to be explained as a simple iodine deficiency. Much of the work hitherto done in that respect is faulty and unreliable. I recently had sent to me a specimen of virgin soil from Tacna in Chile. It was a light brown sandy soil. I sent it to a firm of manufacturing and analytical chemists for the determination of its iodine content. They examined it repeatedly by the method of Hercus, Benson, and Carter[2] in the exact manner as described by them. No iodine whatever could be detected, but on re-examination by a different method, much more accurate for determining minute quantities of iodine, 8 parts of iodine per 10,000,000 parts of soil were found to be present. The method used by Hercus, Benson, and Carter is both cumbersome and inaccurate, and the conclusions drawn by them as to the cause of endemic goitre in New Zealand, based on their examination of soils for iodine content by that method, are totally unreliable.—I am, etc.,

Heanor, Derbyshire, Sept. 25th. Philip H. J. Turton.

## TREATMENT OF VARICOSE VEINS BY INJECTION.

Sir,—In the Journal for September 25th (p. 554) you publish a short article by Dr. A. H. Douthwaite on the treatment of varicose veins by injection, and since, as he points out, this method is not much practised in England, I am emboldened to record my limited experience on these lines.

Dr. Douthwaite employed in his series the method suggested and practised by Genévrier, who for this purpose made use of various salts of quinine, notably the hydrochloride, to produce a local thrombosis.

Whilst in Paris, during the early part of 1925, I made use of this method on several occasions with considerable success, although the patients, unlike those of Dr. Douthwaite, almost invariably complained of considerable pain following the injections. Later, however, Professor Sicard kindly instructed me in the technique of the method suggested by himself and Professor Paraf.

I immediately adopted this in preference to the older system, since the patients, with one exception, preferred it on the score of its greater freedom from pain; whilst the sodium salicylate solution employed would appear to be less toxic than quinine.

An account of this method was recently published by Sir Sidney Alexander,[3] who stated that he had employed it in a hundred cases with uniform success. A point which he did not, however, emphasize is that it is unwise to

[1] *Journ. Royal Sanitary Institute*, Vol. xlvi, No. 12, 1926.
[2] *Journ. of Hygiene*, 1925.
[3] *Lancet*, July 24th, 1926.

SIR,—In reply to Dr. E. Hudson (September 25th, p. 579) I may state that the mortality rates were obtained from the Registrar-General's death returns. I had worked out the variation in the ages of the two classes. I accept the figures which Dr. Hudson has given for the towns named, and freely admit that the death rates are materially altered. I still maintain that the conditions of their labour, dietary, etc., are factors that favour less cancer, less appendicitis, less constipation, and less of the toxins that produce other ill effects. From over fifty years' experience of medical work I am confident that cancer has increased. We know the chief causal factors; much can be done by free clinics to educate the people on this question, and early diagnosis can be made of growths in the precancerous stage.

During the past thirteen years in Blackpool the majority of the patients were women; in cases of cancer of the breast they were florid, obese, and weighed too much. Only yesterday this was confirmed by one of the hospital surgeons. I may say that all the patients were in fairly good circumstances. In my early student days cancer patients were usually thin.—I am, etc.,

Blackpool, Sept. 27th. JOHN BROWN.

## A DISCLAIMER.

SIR,—Our attention has been drawn to a book called *Microbe Hunters*, recently published by Harcourt, Bruce and Company, New York, and alleged to have been written by one Paul de Kruif—a gentleman whose name is quite unknown to us. The work evidently aims at being a kind of popular history or rather romance regarding medical discovery, and mentions us among others. We should like an opportunity to say, for the information of your readers, that the author's statements about ourselves and our researches are almost entirely apocryphal; that they are not supported by reference to the original literature; and that his knowledge of the subjects with which we have been concerned is obviously incomplete.

We have been legally advised that some of his assertions regarding ourselves are libellous according to British laws; but in America we have no means of protection except a public denial of the truth of his allegations, and we therefore trust that you will allow us to publish such a denial, as emphatically as we may, in your columns.

Dr. Cuthbert Christy's signature does not appear on this letter as he is in Africa; before sailing, however, he left us the following statement:

"With regard to Paul de Kruif's book *Microbe Hunters* I beg to emphatically state that it contains statements which are totally erroneous, misleading, and some of them libellous. As an example I will quote paragraph 2, page 264, which reads: 'The third member (viz., myself) became disgusted with the ignorance and failures of his two colleagues and went off prospecting for rubber. . . .' This paragraph is absolutely untrue and libellous. It suffices to say that I have always given credit to Castellani for his discovery of the trypanosome as the etiological agent of sleeping sickness—see, for instance, my letter to the *Morning Post*, August 22nd, 1923. As regards my abandoning my colleagues and going off prospecting for rubber, this is entirely libellous. I never abandoned my colleagues and, as a matter of fact, I did not get interested in rubber until 1906, which was three years after the labours of the First Sleeping Sickness Commission were completed."

—We are, etc.,

ALDO CASTELLANI,
GEORGE C. LOW,
DAVID NABARRO,
RONALD ROSS.

September 27th.

# Obituary.

THE tragic death of Dr. L. B. PERRY on July 18th, whilst on a holiday at Mundesley, deprives the profession of one of those outstanding men who can ill be spared, and his loss will be acutely felt by a wide circle of patients and friends, both in this country and in that part of Mesopotamia where much of his time was spent. Lionel Banks Perry was born on December 31st, 1884, at Chesterton Vicarage, Cambridge; his father was the Rev. S. E. Perry. From Tonbridge School he went to Queen's College, Cambridge, and after taking his B.A. degree in the Natural Sciences Tripos of 1906 he entered St. Thomas's Hospital. In 1909 he graduated M.B., B.Ch.Cantab., and obtained the M.R.C.S. and L.R.C.P. diplomas. Whilst at St. Thomas's he served as house-physician, obstetric house-physician, casualty officer, and clinical assistant in the children's department; subsequently he was resident medical officer at the Queen's Hospital for Children. From 1913 to 1920 he was in partnership with Dr. Wilson Tyson at Lowestoft, with the appointment of assistant surgeon to the Lowestoft Hospital. During part of this time Perry held a temporary commission in the R.A.M.C., and saw service in the Near East, being invalided home in 1918 from Salonika with malaria. From 1922 to 1925 he served as surgical specialist in Mesopotamia, the first part of the time being passed at Mosul, and later at Hillah. There he showed great surgical ability and earned a high reputation amongst the Arab population. The uncertainty prevailing in Iraq decided him against renewing his contract for a longer period and he returned to England. A short trip to Canada preceded a course of post-graduate study in London. In February of this year he married, and a few weeks before his death he had entered into a partnership at Royston, near Cambridge. As a colleague he was the essence of loyalty, possessed of a strong sense of duty and high ideals, having a judicial regard for the rights of others and a charm of manner which endeared him to all. His kindness of heart and sympathetic understanding made his presence welcome wherever he went. Combined with these sterling qualities as a man, Perry possessed a fine degree of professional skill and courage, and a keen appreciation of human nature. No matter whether his patient was rich or poor, English or Arab, he was accorded that great respect and affection which comes only to the true and upright man whose single purpose is the welfare of others in time of sickness. To those who were privileged to know him well his death came as a very great shock; and at a time when great happiness and much good work lay ahead.

J. M. H.

The deaths are announced of Dr. JOSEPH TEISSIER, honorary professor of the Lyons Faculty of Medicine, and Dr. E. BABAK, professor of physiology in the Masaryk University at Brno, known for his work on regulation of respiratory movements and on the influence of the endocrine glands on amphibian metamorphosis.

# Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

PARLIAMENT met on September 27th to approve the renewal of the Emergency Regulations for the month of October. The House of Lords rose the same night, but the Commons sat again on September 28th to debate the Regulations in detail. On both days speeches were delivered from the Government and Opposition Front Benches, which were meant to discover possible methods of compromising the coal dispute, but nothing appeared to be effected.

### *Hours of Workers in Poor Law Institutions.*

On the motion for the adjournment of the House, on September 27th, Miss Susan Lawrence made allegations as to the way in which the nominees of the Minister of Health were administering relief. She said that the first thing they did in the West Ham Union was to increase the hours of labour in the infirmary from forty-eight to fifty-six a week. The people affected were sick nurses, sick attendants, and other officials of the hospital. The Union approached the nominee guardians, who admitted the correctness of the Union's statement that it was intended that some of the staff should be dismissed as a consequence of the increase in hours. Eleven sick-room attendants had already been dismissed, and it was anticipated that more would be dismissed. It would be bad enough if this action were taken in London infirmaries, but it was very much worse in East Ham. In London infirmaries the cancer and venereal cases were removed to the Metropolitan Asylums Board, which had a forty-eight hour week. In fixing a forty-eight hour week the Asylums Board had borne in mind the notorious fact that no kind of nursing made so great a claim on the attention or physical strength of the nurses as that of the last stages of cancer or venereal disease cases. The first-fruit of the policy of the Ministry of Health was that the dying should have less alleviation of their pain. These nurses and attendants were only human; they could not put as much work into a twelve-hour shift as they could into a shorter one. With longer hours it was impossible that the sick could be

not afford the time or money to leave his practice for a longer trip. Since then they have been held regularly and have proved highly satisfactory and most interesting.

It seems unfortunate, although inevitable to some degree, that so little should be known in the mother country regarding the higher educational centres of the various dominions.—I am, etc.,

September 10th. E. Cosman Davis, M.D., C.M.

## THE MEDICAL PROFESSION AND LIFE INSURANCE COMPANIES.

Sir,—The last paragraph of Dr. W. A. Murray's letter in the Journal of September 25th (p. 579) is of considerable interest. For some years past I have refused life insurance work on account of the smallness of the fee.

Quite recently I received the proposal forms of a well known company with a request to examine a certain gentleman, the fee being one guinea. I returned the forms with an intimation that my fee for the work was two guineas. I received a polite letter in return from the actuary regretting that he could not pay me a larger fee, as that was the fee arranged between the British Medical Association and the life offices.

I wrote to the Medical Secretary of the British Medical Association for information on this point. He informed me that the agreement for a one-guinea fee was arrived at six years ago. "This agreement was only reached with the insurance companies after protracted negotiations, and there was a distinct danger at one time that the companies would give up medical examinations save in exceptional circumstances."

This rather surprised me. Are the insurance companies indulging in an eleemosynary act in offering a fee at all to medical practitioners?

The minimum fee adopted by the Buckinghamshire Division of the British Medical Association for a visit to a patient's house is 3s. 6d. and mileage. Buckinghamshire is an agricultural county, and the wage of the farm labourer is 31s. 6d. per week. Is it not time that wealthy clients should be made to pay a reasonable fee for a written opinion of a highly skilled nature?—I am, etc.,

Haddenham, Bucks, Sept. 25th. T. W. S. Paterson.

Sir,—I agree with Dr. W. A. Murray that it is time to review the relations existing between the medical profession and life insurance companies.

I have an idea that many years ago a guinea was considered to be the correct fee that one should receive from any recognized insurance company for medical examination, and when the British Medical Association agreed with insurance companies that the minimum fees should be half a guinea for cases up to and including £100, and one guinea for cases over £100, I do not think that the wholesale introduction of non-medical policies was anticipated.

Now, as some of the companies, who do an enormous business in policies in the region of £100, only use us in their doubtful cases, our insurance work is but a fraction of what it was thirty years ago, and certainly more difficult when we are dealing only with cases which the companies themselves are doubtful about. It is my opinion that in these cases the minimum fee should be raised to one guinea.—I am, etc.,

London, N., Sept. 27th. John Paxton.

## INFLUENZA ANTIGEN IN THE TREATMENT OF ENCEPHALITIS LETHARGICA.

Sir,—I am naturally gratified that Dr. Keith (September 18th, p. 525) has had such success with my influenza antigen in the treatment of his two cases of encephalitis lethargica. These patients may fairly be taken as test cases, for they were many weeks ill and steadily degenerating when this antigen was used, and the first had had three doses of a commercial influenza antigen, the influence of which was apparently *nil*, while a one million dose of my antigen had an immediate result.

This emphasizes a most important point in the quality of antigens: to be effective they must be made from recently isolated virulent microbes unspoiled by any detoxicating influence, such as overheating, in their manufacture. In the case of the influenza bacillus and such easily killed microbes no heat is necessary for killing them. Moreover, the microbes are grown on agar containing 10 per cent. of unheated defibrinated human blood, virtually a human tissue, so that as little virulence as possible is lost.

It is very difficult now to obtain influenza bacilli isolated from a case of typical influenza, or, still better, from a case of encephalitis lethargica. In the latter cases blood cultures should be made, the blood being transferred to broth at blood-heat and kept at this temperature on the way to the laboratory. In the former case the sputum must not be allowed to get cold on the way to the laboratory, and the cultures should be made on blood-agar slopes warmed to blood-heat. A thermos flask is invaluable for the conveyance of such specimens to the laboratory.

I should be much obliged to any laboratory which would supply me with an antigen isolated from such cases and made as I suggest, since cases of the kind are now few and far between in Ireland.—I am, etc.,

University College, Dublin, Sept. 21st. W. M. Crofton.

## APPENDICITIS AND VEGETARIANISM.

Sir,—Referring to Mr. Hamilton Bailey's letter which appeared under the above heading in your issue of September 18th, he will find abundant testimony that appendicitis (and also cancer) are of very rare occurrence in non-flesh eating peoples in the utterances of many Indian practitioners—R.A.M.C. and otherwise.[1] Again, some little time ago I saw it recorded of a number of hospitals in Northern India that "of 50,000 in-patients treated in them for the past ten years only fourteen were cases of appendicitis." The Surgeon-General of Egypt has also pointed out (annual return) that while the percentage incidence of cancer and appendicitis among the Moslem population is practically that of Europe, that of the Copts, who are vegetarians, is very small indeed.

I may add that I am connected with several vegetarian societies in England and know a fairly large number of their members. I have never yet known of appendicitis occurring in any who had followed a flesh-free dietary for twelve months. I therefore consider Mr. Bailey's case an exceptional one.—I am, etc.,

Torquay, Sept. 27th. Robert H. Perks, F.R.C.S.Eng.

## CANCER MORTALITY AND AGE RATES.

Sir,—Dr. E. Hudson asks (September 25th, p. 579) for evidence that cancer is more prevalent among the well-to-do than the poor. If he will refer to my "Note on cancer occurrence in Hampstead and Shoreditch," published in *Public Health* (March, 1924), he will find what he seeks.

With the kind assistance of Dr. Stevenson, superintendent of statistics, I worked out the death rates from cancer for each sex, between the ages of 45 and 65 and over 65, for the eight years 1913 to 1920. The death rates for males were almost the same in the two boroughs, but for females more than 25 per cent. higher in Hampstead than in Shoreditch. Quoting from *Public Health*:

"The men are usually the best fed members of working class families, and consequently there would not be so much difference in nutrition between men in Hampstead and Shoreditch. But smoking is recognized to be the chief cause of cancer of the mouth, and alcoholism is an important cause of cancer of the mouth, throat, and stomach (see Sir A. Pearce Gould, Bradshaw Lecture, 1910, quoting a paper by Sir Arthur Newsholme, and Annual Reports on the Health of Woolwich, 1913-18). . . . There is considerably more alcoholism in Shoreditch than in Hampstead, and there is probably at least as much smoking. This perhaps accounts for the nearly equal occurrence of cancer among men in the two boroughs."

Over the age of 65 cancer was nearly twice as prevalent in Hampstead women, and much more prevalent in Hampstead men, and it is at this age that we should expect to find most overnutrition among the well-to-do and least among the poor.—I am, etc.,

Sidney Davies,
Worthing, September 28th. Late M.O.H. Woolwich.

[1] *Practitioner*, March, 1926

THE Home Office has issued draft regulations with reference to the weight of various materials which may be lifted by workers in factories and workshops dealing with woollen and worsted textiles. Copies of the regulations may be obtained from the Factory Department of the Home Office, and any objection to them must be sent to the Secretary of State within thirty days from September 21st.

THE following new appointments in the Tropical Division of the London School of Hygiene and Tropical Medicine are notified: Dr. V. B. Wigglesworth, to be assistant in the Department of Entomology; Dr. Leslie J. Davis, to be research student and demonstrator in the Department of Tropical Pathology and Bacteriology; and Miss Joyce Leishman, B.Sc., to be research student and demonstrator in the Department of Helminthology.

A CONGRESS arranged by the International Society of Sexuology will take place in Berlin from October 11th to 15th. Information regarding the society and the congress may be obtained from Dr. Moll, Berlin W. Kurfürstendamm 45, or Dr. Stutzin, Berlin W. Kurfürstendamm 44.

A PRACTICAL and theoretical course in microbiology and immunology for public health students will be held at Amsterdam University, beginning on October 4th. Further information can be obtained from Dr. A. C. Ruys, Mauritskade 57, Amsterdam.

PROFESSOR E. W. SCRIPTURE, of the University of Vienna, announces a course for the winter semester, entitled "Introduction to speech neurology, including the theory of aphasia according to Henry Head."

THE Queen Alexandra Sanatorium Fund, which gives grants to enable tuberculous patients with limited means to receive sanatorium treatment at Davos, assisted nine patients in the summer of 1925, and twenty-six during the following winter. Before October, 1925, such patients were accommodated in a pension under the control of the fund; the new arrangement is stated in the annual report of the fund for 1925–26 to have been more satisfactory than the old, both financially and medically.

# Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the BRITISH MEDICAL JOURNAL alone unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the BRITISH MEDICAL JOURNAL must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the JOURNAL, should be addressed to the Financial Secretary and Business Manager.

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The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 4737 Dublin), and of the Scottish Office, 6, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 4361 Central).

## QUERIES AND ANSWERS.

### MEDICAL HISTORY.

DR. L. A. PARRY (Hove) writes: I shall be grateful if any of your readers can help me with the following information: (1) Any book on the history of medical jurisprudence, especially as regards the date of the discovery of the various tests for arsenic, strychnine, etc. (2) The volume of the *Lancet* in which a letter on tooth extraction by Dr. Smethurst, the poisoner, appears. (3) Any book dealing with the methods of medical qualification three to four hundred years ago. (4) Any information of Basil Valentine the alchemist.

### ERYTHEMA NODOSUM.

DR. ARTHUR FINEGAN (Highgate) asks for suggestions regarding the etiology and treatment of the following case: A hospital nurse, aged 35, has suffered at intervals during the past twenty years from periodic attacks of unmistakable erythema nodosum. About two onsets supervene almost every year, irrespective of season or apparent cause. She sustained attacks of both malaria and dysentery in East Africa during the war. At present there is a suspicion of left ovarian inflammation, and she runs a temperature if overtired by work. In other respects she enjoys good health.

### MUCOUS COLITIS.

"R. F." asks for suggestions in the treatment of a female patient, aged 39, who suffers from mucous colitis. The condition is of several years' duration, but lately has been more severe; there is much pain, especially at night, the pain being relieved by passage of mucus in "balls" and at times in "casts." The patient had scarlet fever about 20 years of age, followed by an otitis media, which eventually cleared up. About two and a half years ago she began to suffer great pain at her periods, menorrhagia being very marked; pil. ergotine and curettage had little or no effect. Latterly hysterectomy had to be performed. At the operation there were vast adhesions all round the pelvic organs, and the uterus and ovaries were removed. The patient is now getting hormotone (one tablet thrice a day before food). After the operation the mucous colitis seemed to light up and the pain became excruciating; over the abdomen there is well marked panniculitis. The following treatment has been tried: Rectal injections of olive oil, followed by saline injections in the morning, making sure of daily action of bowels; charcoal has been given in large quantities; dimol has been used without any effect. The bulky diet as advocated by the German authorities has been tried, and also the French plan of mincing all animal food and passing vegetables through a sieve. Lately the potassium permanganate and thyroid treatment has been tried, but has failed to give relief.

### WATERY EYES.

"A. G. F." writes to ask if any reader of the BRITISH MEDICAL JOURNAL can say what is the cause of watery eyes. For weeks and months his eyes are normal and give no trouble, then suddenly they produce a redundancy of tears, which overflow and require the constant application of his handkerchief. Is there any literature on the subject?

### ARSENIC AND TAR AND CANCER.

DR. VINCENT MOXEY writes from Rio de Janeiro to ask if the administration of arsenic for moderate periods or the prolonged use of tar externally predispose the recipient in the slightest way to cancer. He states that in the tropics, both east and in the Atlantic, there is in the crews of ships much skin trouble, such as eczema, erythema intertrigo, pruritic conditions, tinea circinata (Dhobie itch), staphylococcal boils, axillary abscesses, and pityriasis. Tinea circinata occurs in epidemic form voyage after voyage in the same ship among the stokers—an exceptionally clean class. Perhaps the two agents most useful and usable under shipboard conditions are tar—either as liquor carbonis detergens or liquor picis carbonis—and, to a less extent, arsenic. Now arsenic, according to the late Sir Jonathan Hutchinson, predisposes to cancer, and, according to Haldin-Davis in his book, *Skin Diseases in General Practice*, several writers have recorded cases of arsenical hyperkeratosis becoming malignant; workers in tar have long been known to be prone to cancer. He asks whether, this being so, the prolonged use of these remedies in chronic conditions is justifiable. In certain cases of the tinea class, affecting the groins, scrotum, and the parts between the toes, tar lotions are used voyage after voyage on the same person, both for cure and prophylaxis. How far can one go safely with the use of these bodies?

### POISONS IN INSTITUTIONS.

A CORRESPONDENT inquires as to the current regulations which govern the keeping and dispensing of poisons in a private sanatorium. The answer is that the full requirements of the various regulations made under the Dangerous Drugs Acts must be strictly observed. No person in such a place may be in possession of or administer the drugs unless he is a registered medical practitioner or dentist or other person authorized by the Regulations, or unless he is administering the drug under the direct personal supervision of a doctor or dentist, or unless the drug has been supplied on a prescription (or dispensed by the doctor) for the use of a patient. Doctors and dentists are advised to keep any dangerous drugs when not in use under lock and key as far as possible. This is not actually required by the Regulations, but is obviously a desirable precaution. Copies of the various regulations may be obtained from H.M. Stationery Office, Imperial House, Kingsway, London, W.C.2.

### CAN BEACH BATHING BE MADE SAFER?

DR. M. W. BROWDY (London, W.) writes: "Neptune's" letter (September 18th, p. 544) raises a very important problem and is of special interest to me, for in an effort to overcome the tragedies he mentions I have invented a bathing costume which I think will to some extent make bathing safer. The various contrivances, such as collars, wings, belts, etc., do not find favour with the public, through being either cumbersome or unsightly. I have suggested a bathing costume which has an extra layer of material encircling the thorax, thus forming a sleeve for a depth of six inches. Within this sleeve there is an inflating chamber made of thin rubber or oiled silk, terminating at one axilla and attenuated at the other, to give freedom of arm movements; over the sternal portion there is attached a small rubber tube with valve for inflation by blowing. One can inflate before or after

adequately looked after. She asked if it was proposed to lay down any rules on the hours to be worked by nurses. Mr. J. J. Lawson referred to the administration of relief in the Chester-le-Street Union. He said that the Minister of Health should have sent down doctors from his own department to examine young men in order to settle whether or not they were destitute. Mr. Chamberlain said Miss Lawrence was under a misapprehension about the relations between the West Ham guardians and the Ministry. Under the recent Act of Parliament the West Ham guardians and those at Chester-le-Street were not special commissioners. They were boards of guardians, and the relations between them and the Ministry were exactly the same as with any other board. They had the same powers, and he had no more powers over them. All he could do when he had complaints, therefore, was to draw their attention to the matter and ask for their observations. That had been done in regard to the increase of hours in certain institutions in West Ham, but he had not yet received a reply from the guardians. It was quite untrue to suggest that the dismissal of these attendants was subject to his discretion.

Mr. Chamberlain, replying to Mr. W. Thorne, who asked if he was aware that the West Ham Union Poor Law Commissioners had decided to abolish the forty-eight-hour working week and the eight-hour day of a number of their employees, said that he had received certain representations on the matter and was in communication with the board of guardians.

*Boards of Guardians and Outdoor Relief.*

In the House of Commons on September 28th Mr. Chamberlain, replying to further questions about boards of guardians, said that it was not the duty or the practice of boards of guardians to report changes in their administration or scale of relief which they might use for their guidance, but he had been informed of reductions in scales made since May 1st in forty-two instances. He knew of no case where a board of guardians had ceased to grant any relief to the dependants of those involved in the present coal stoppage, but six boards were reported to have decided that only indoor relief should be granted in these cases. Such a decision was within the discretion of the guardians so far as regarded applications considered by them, but nothing could interfere with the duty of a relieving officer to deal as might be required with any case of sudden or urgent necessity. It was obvious that a dispute of this magnitude and duration must involve hardship and even distress. He had no reason to suppose that boards of guardians were not fully discharging their duties in the matter.

## Universities and Colleges.

### UNIVERSITY OF LONDON.

SEMON LECTURE.

THE Semon Lecture will be given by Dr. A. Brown Kelly in the Barnes Hall of the Royal Society of Medicine, 1, Wimpole Street, W.1, on Thursday, December 2nd, at 5 p.m., the subject selected being nervous affections of the oesophagus.

UNIVERSITY COLLEGE.

The following appointments for the session 1926–27 have been made with the Faculty of Medical Sciences at University College:—*Demonstrators in Anatomy:* L. Renvid, M.B., B.Ch., and E. R. P. Williams, M.B., B.Ch. *Sharpey Scholar in Physiology:* L. E. Bayliss, B.A.

## The Services.

### DEATHS IN THE SERVICES.

Brigade Surgeon Charles Edward Wikeley, R.A.M.C.(ret.), died at Blackpool on July 24th, at the great age of 93. He was born at Leeds on April 26th, 1833, and took the L.S.A. in 1854, and the M.R.C.S. in 1858. Entering the army as assistant surgeon on January 12th, 1859, he became surgeon major on April 1st, 1874, and retired, with an honorary step, on February 2nd, 1884. In the old regimental days he served as assistant surgeon in the 19th Foot, or Green Howards, also known as Alexandra Princess of Wales's Own Yorkshire Regiment.

Major Arthur Ormsby Fitzgerald, R.A.M.C.(ret.), died on July 30th, aged 64. He was born on September 26th, 1861, and after taking the L.R.C.S.I. and L.K.Q.C.P. in 1883, entered the army as surgeon on May 30th, 1885, becoming surgeon major after twelve years' service, and retiring on May 30th, 1905. He served in the Burma war in 1885-87, receiving the frontier medal with a clasp; and in South Africa in 1899-1900, when he took part in operations in Natal, including the action at Laing's Nek, the relief of Ladysmith, and the actions of Spion Kop, Vaal Krauz, the Tugela Heights, and Pieter's Hill, was mentioned in dispatches in the *London Gazette* of February 8th, 1901, and received the Queen's medal with four clasps.

Colonel William O'Hara, Madras Medical Service (ret.), died at Boscombe, Hants, on August 6th. He was born at Saugon, on January 30th, 1852, the son of George O'Hara, I.M.D., and educated at the Madras Medical College. After taking the L.R.C.P. and S.Ed. in 1874, he entered the I.M.S. as surgeon in September, 1874, attained the rank of colonel in May, 1906, and retired in June, 1911. His younger brother, Lieut.-Colonel A. J. O'Hara, also of the Madras Medical Service, retired in 1902, and died in 1915.

## Medical News.

THE prizes will be distributed at Charing Cross Hospital Medical School on Wednesday, October 6th, at 3.30 p.m., by Field-Marshal Sir William Robertson. The ceremony will take place in the out-patients' hall; tea and coffee will be served afterwards, and a reception will be held in the school. The annual dinner of past and present students will be held that evening at the Hotel Victoria, Northumberland Avenue, at 7.30.

THE annual dinner of past and present students of St. Mary's Hospital Medical School will be held at the Connaught Rooms, Great Queen Street, on Monday, October 4th, at 7.30 p.m. The chair will be taken by Dr. G. W. H. French.

DR. LOGAN TURNER, P.R.C.S.Ed., consulting surgeon, Ear and Throat Department, Royal Infirmary, Edinburgh, will deliver an address on "Some aspects of intracranial infection of nasal origin" at the opening of the winter session of the Central London Throat, Nose, and Ear Hospital, on Friday, October 15th, at 4 p.m.

AT the opening of the winter session 1926–27 of the University of Durham College of Medicine, Newcastle-on-Tyne, an introductory address, on the freedom of medicine, will be given by Dr. C. O. Hawthorne, F.R.C.P., in the Examination Hall of the College, on Friday, October 8th, at 4.30 p.m.

THE Lord Mayor has issued invitations to a festival dinner in support of St. Mark's Hospital, City Road, to be held at the Mansion House, London, on Tuesday, October 26th, at 7.30 p.m.

THE annual dinner of the Chelsea Clinical Society will be held at the Café Royal on Tuesday, October 26th, at 7.30 p.m.

THE opening meeting of the session 1926–27 of the Hunterian Society will take place at Simpson's Restaurant, Cheapside, E.C.2, on Monday, October 18th, at 7.30 p.m. On Monday, November 15th, the society will meet in the Cutlers' Hall, E.C., at 9 p.m., when there will be a discussion on medicine and the press. At the dinner meeting at Simpson's Restaurant on Monday, December 6th, at 7.30 p.m., there will be a discussion on the nervous child.

A SHORT post-graduate course is being held at St. Mary's Hospital Medical School, Paddington, on Saturday, Sunday, and Monday, October 2nd, 3rd, and 4th. The lectures are given in the library of the Medical School and are open to all medical practitioners without fee.

THE first of the special demonstrations arranged by the Fellowship of Medicine for the winter session will be given by Mr. W. H. McMullen, on common injuries of the eye, at the Royal Westminster Ophthalmic Hospital, Charing Cross, on October 8th, at 5 p.m. This demonstration is open to all members of the medical profession, without fee. A series of lectures on emergencies in medicine and surgery will begin on October 14th, at 5 p.m., in the lecture room of the Medical Society of London, 11, Chandos Street, W. The Central London Throat, Nose, and Ear Hospital will hold a comprehensive intensive course in laryngology, rhinology, and otology from October 4th to 23rd; the clinical part of the course may be taken in conjunction with the operative or separately, but early application is requested for the latter as the entry is limited. From October 18th to 30th there will be a combined whole-day course in diseases of children, arranged by the Paddington Green Children's Hospital, the Victoria Hospital for Children, and the Children's Clinic. On October 18th also two fortnight courses begin—one in gynaecology at the Chelsea Hospital for Women, and the other in genito-urinary diseases at St. Peter's Hospital. A series of eight clinical demonstrations on tropical disease will be held twice a week at 2 p.m., beginning October 5th, at the London School of Hygiene and Tropical Medicine. Copies of all syllabuses, the general course programme of the Fellowship, and its journal may be obtained from the Secretary, 1, Wimpole Street, W.1.

THE Infants Hospital and the National Association for the Prevention of Infant Mortality and for the Welfare of Infancy have jointly arranged a course of lectures on infant care for health visitors, nurses, midwives, and superintendents of infant welfare centres. It will be given in the Lecture Hall of the Infants Hospital, Vincent Square, Westminster, S.W., on Mondays, at 6.30 p.m., from October 4th to December 6th. The association has also arranged a refresher course of lectures on child welfare for health visitors, nurses, midwives, etc., to be held at the City Hall, Cardiff, from October 2nd to 30th, inclusive. Information as to fees may be had from the honorary secretary, Miss Halford, 117, Piccadilly, W.1.

HEALTH week will be observed in numerous towns from October 3rd to 9th. The practice of devoting one week in the year to propaganda work on behalf of the prevention of disease was instituted in 1912; a central organization under the Royal Sanitary Institute was formed in 1914.